



ALL PRESENTATIONS AS PER CUSTOMER REQUEST  
 GRT, CNT, LDT, MLT AND PIT RUN IN COMBINATION  
 CALIPERS ORIENTED ON X-Y AXIS  
 2.71 G/CC USED TO CALCULATE POROSITY  
 ANNULAR HOLE VOLUME CALCULATED USING 5.5" PRODUCTION CASING  
 PHIN IS CALIPER CORRECTED

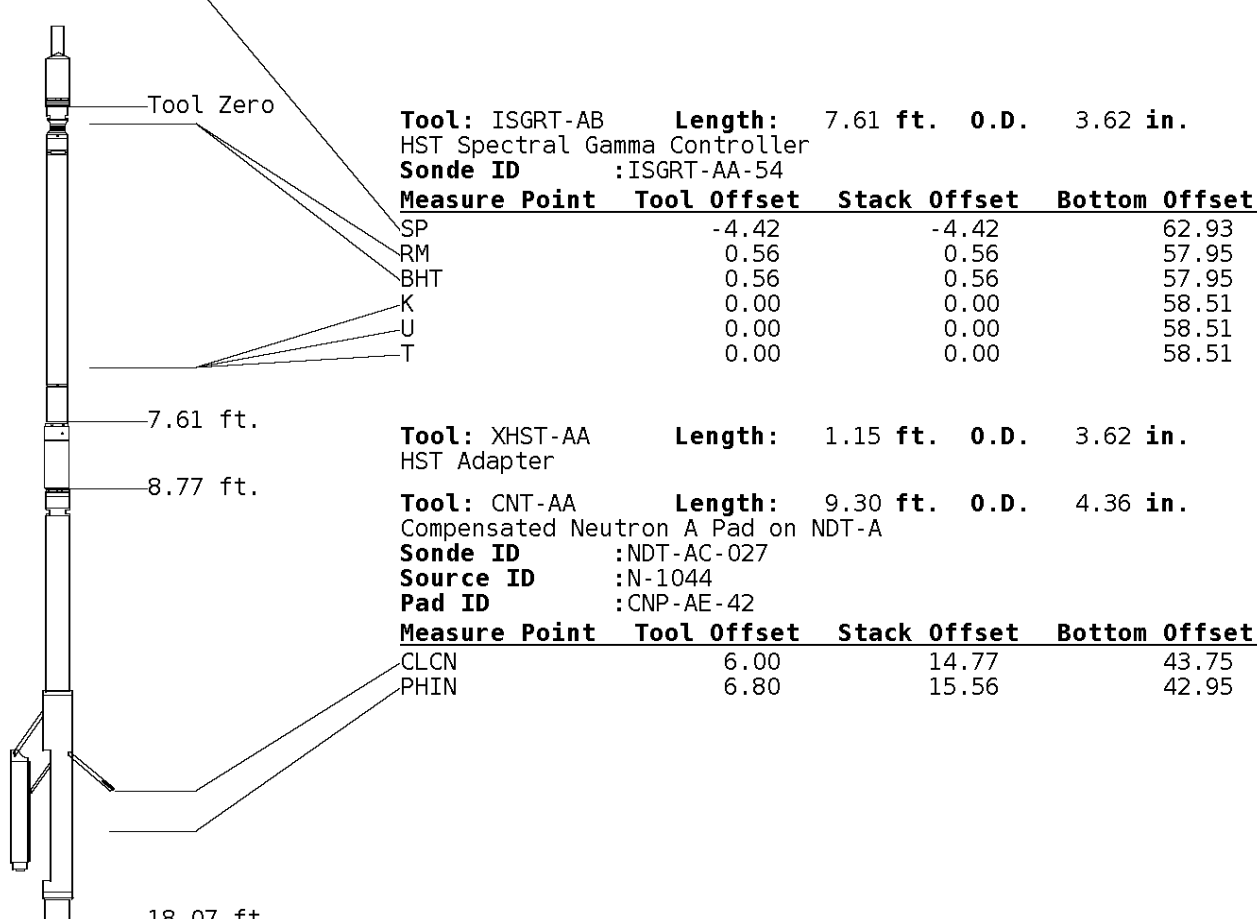
CUSTOMER REQUESTED DETAIL PULLED TO 3700'

GRT: GRP, GRX  
 CNT: PHIN, CLCNIN, PHXN  
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN, PRXL, PECLX, LDENNX, LCORX  
 MLT: NOR\_RF, INV\_RF, MSCLPIN  
 PIT: ILD, ILM, SPU, SFLAEC, CIRD

OPERATORS:  
 J.JOHNSON  
 B.BROWN

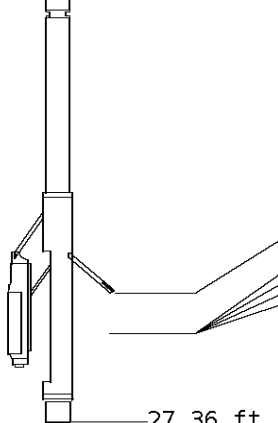
### Tool String Schematic

**Total Tool Length** - 58.51 ft.  
**Maximum Outside diameter** - 6.00 in.  
**Net Weight in Air** - 1002.50 lbs.



**Tool:** LDI-DA      **Length:** 9.30 ft.   **O.D.:** 4.80 in.  
 Litho Density D Pad on NDT-A  
**Sonde ID** : NDT-CA-137  
**Source ID** : CSV-587  
**Pad ID** : LDP-DA-02

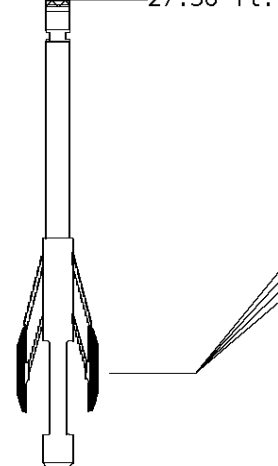
Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.00	24.07	34.45
PEL	7.00	25.07	33.45
PES	7.40	25.46	33.05
LDEN	7.20	25.27	33.25
LCOR	7.20	25.27	33.25



27.36 ft.

**Tool:** MST-DA      **Length:** 9.66 ft.   **O.D.:** 6.00 in.  
 Micro Spherically Focused (IC,D)  
**Sonde ID** : MST-DA-25

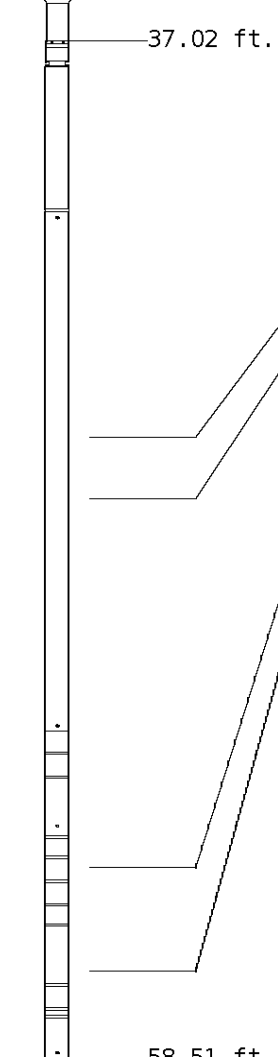
Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	34.97	23.55
MSCLP	7.60	34.97	23.55
INV	7.60	34.97	23.55
NOR	7.60	34.97	23.55



37.02 ft.

**Tool:** PIT-CA      **Length:** 21.49 ft.   **O.D.:** 3.62 in.  
 Phased Dual Induction w/ RM & D  
**Sonde ID** : PIT-CA-062

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	45.95	12.56
ILM	10.10	47.12	11.39
SFLU	17.49	54.51	4.00
SP	20.60	57.63	0.88



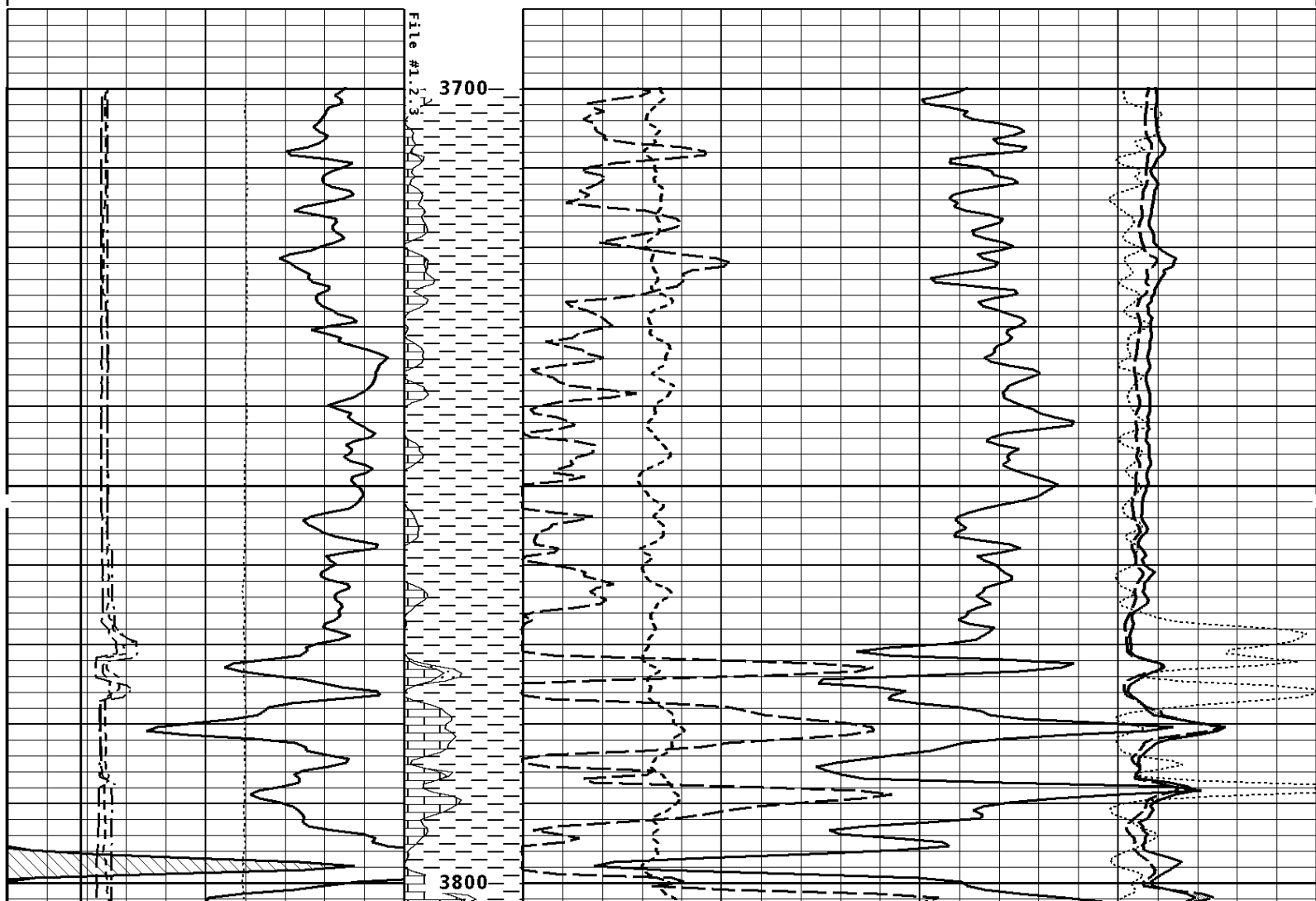
LWT 58.51 ft.

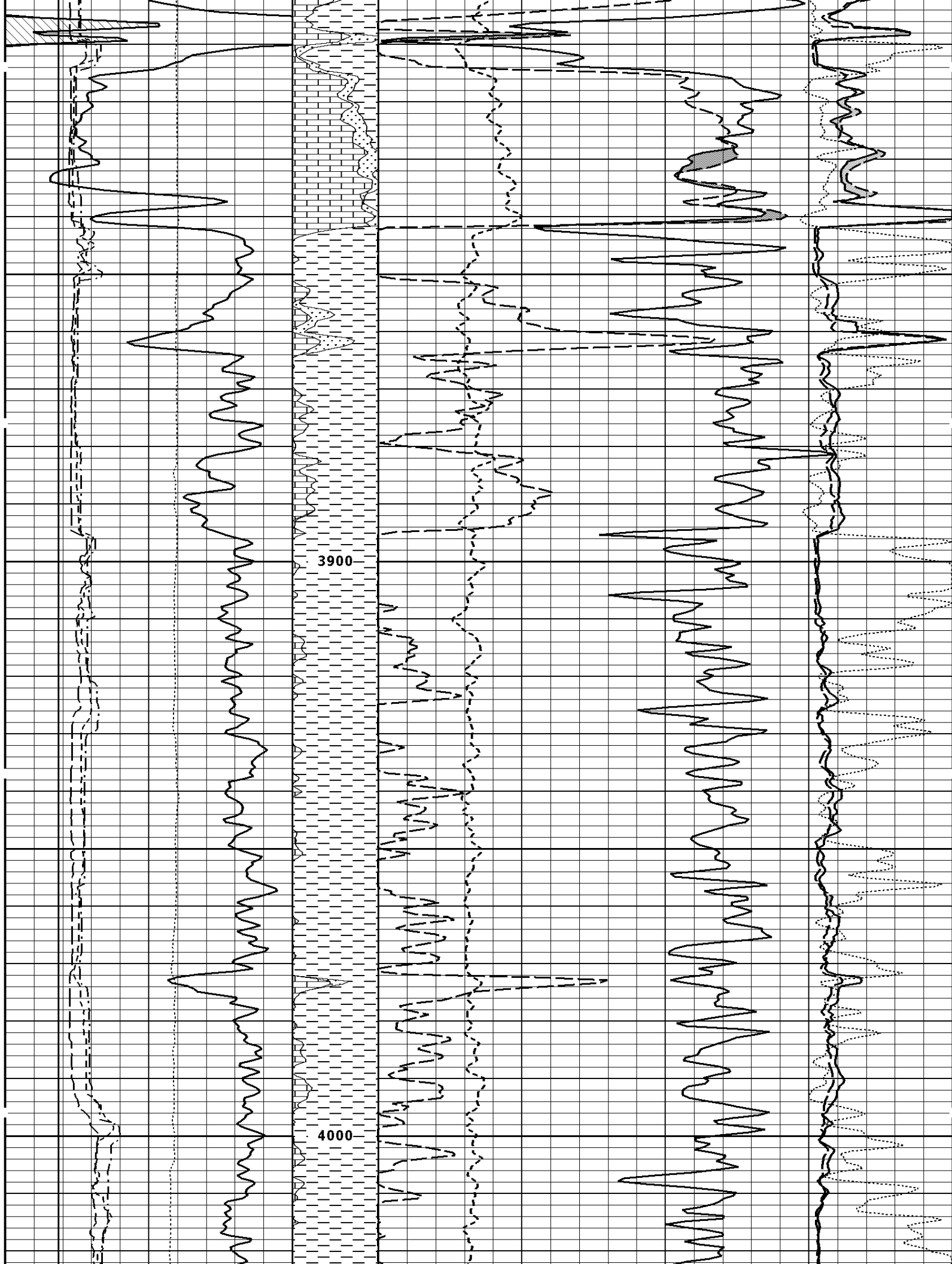
<b>CALIPER MICRO INCHES (IN)</b>	
16 6	26 16
-----	
<b>BIT SIZE INCHES (IN)</b>	
6	16
-----	
<b>NEUTRON (Y) CALIPER INCHES (IN)</b>	
16 6	26 16
-----	

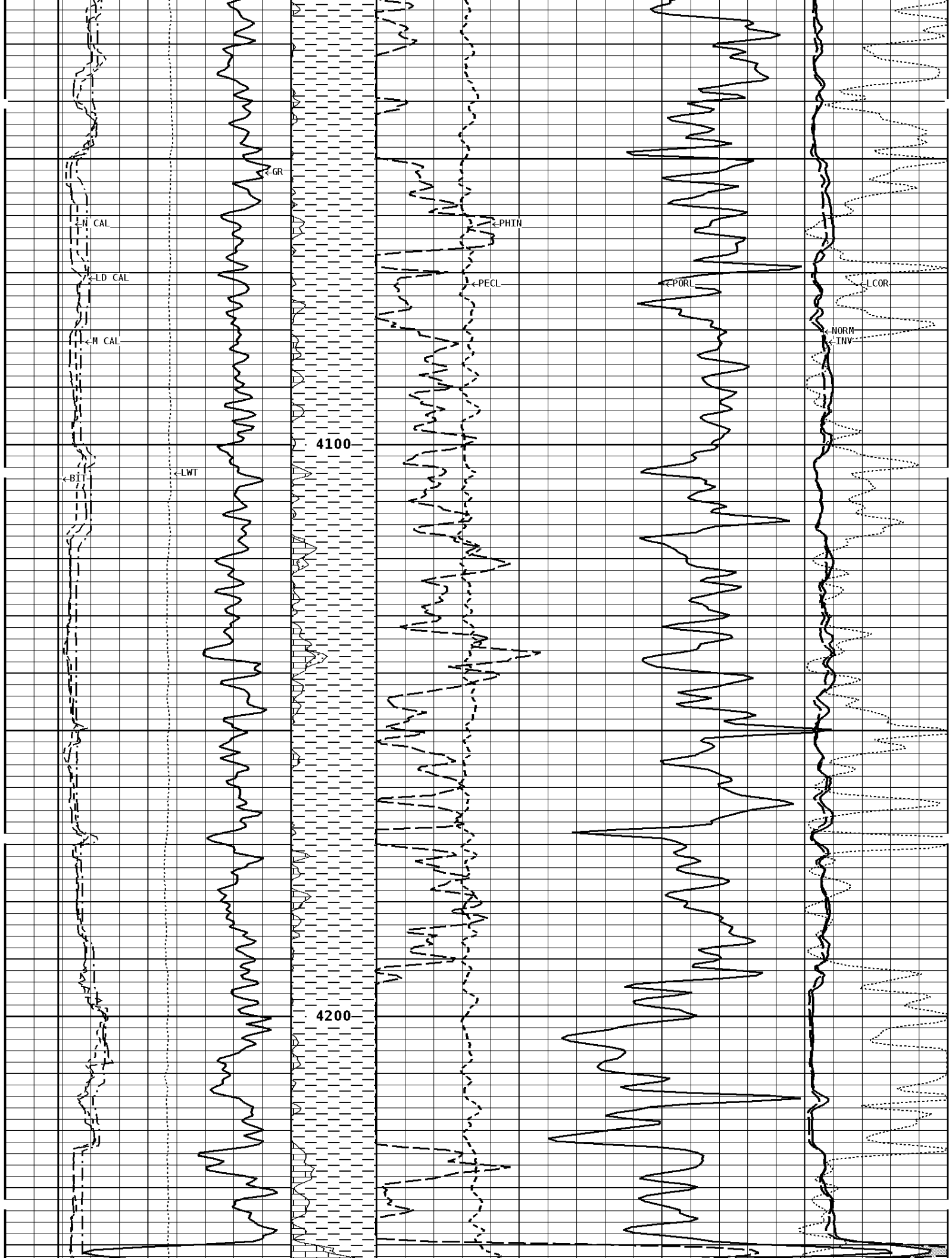
<b>NORMAL OHM</b>	
0	40
-----	
<b>INVERSE OHM</b>	
0	40
-----	

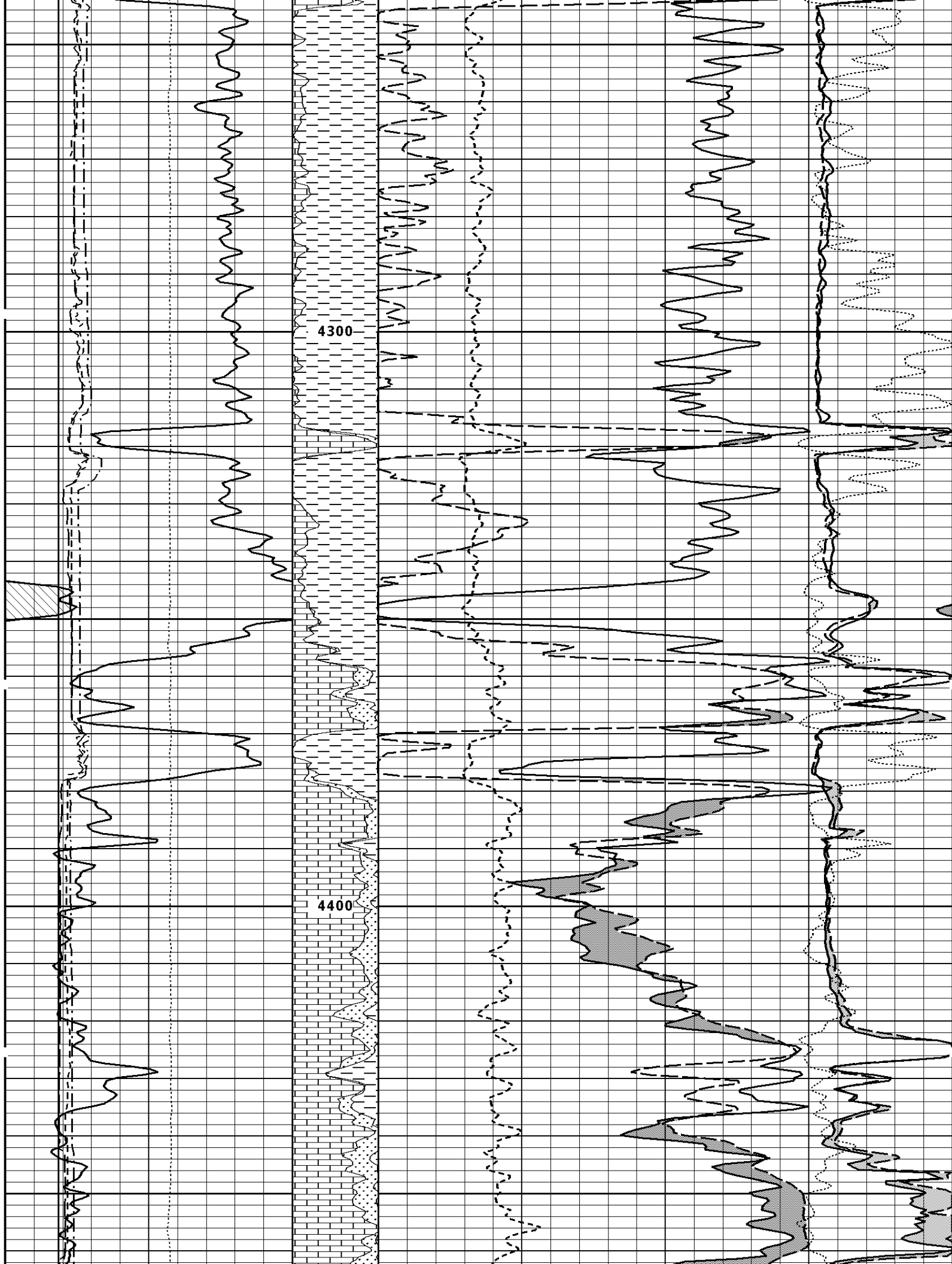
<b>DENSITY (X) CALIPER INCHES (IN)</b>	Volume Quartz	<b>PE CROSS-SECTION BARNS/ELECTRON</b>	<b>DENSITY CORRECTION G/CC</b>
16 6	26 16	0	10 -0.25
-----		-----	
<b>TENSION LBS</b>	Volume Calcite	<b>DENSITY POROSITY (2.71g/cc) PERCENT</b>	
10000	0	70 30 -10	30 -10 -50
-----		-----	
<b>GAMMA RAY API UNITS</b>	Volume DoLo/Shale	<b>NEUTRON POROSITY (LIMESTONE) PERCENT</b>	
150 0	300 150	30	-10
-----		-----	

**1:240 MAIN SECTION**

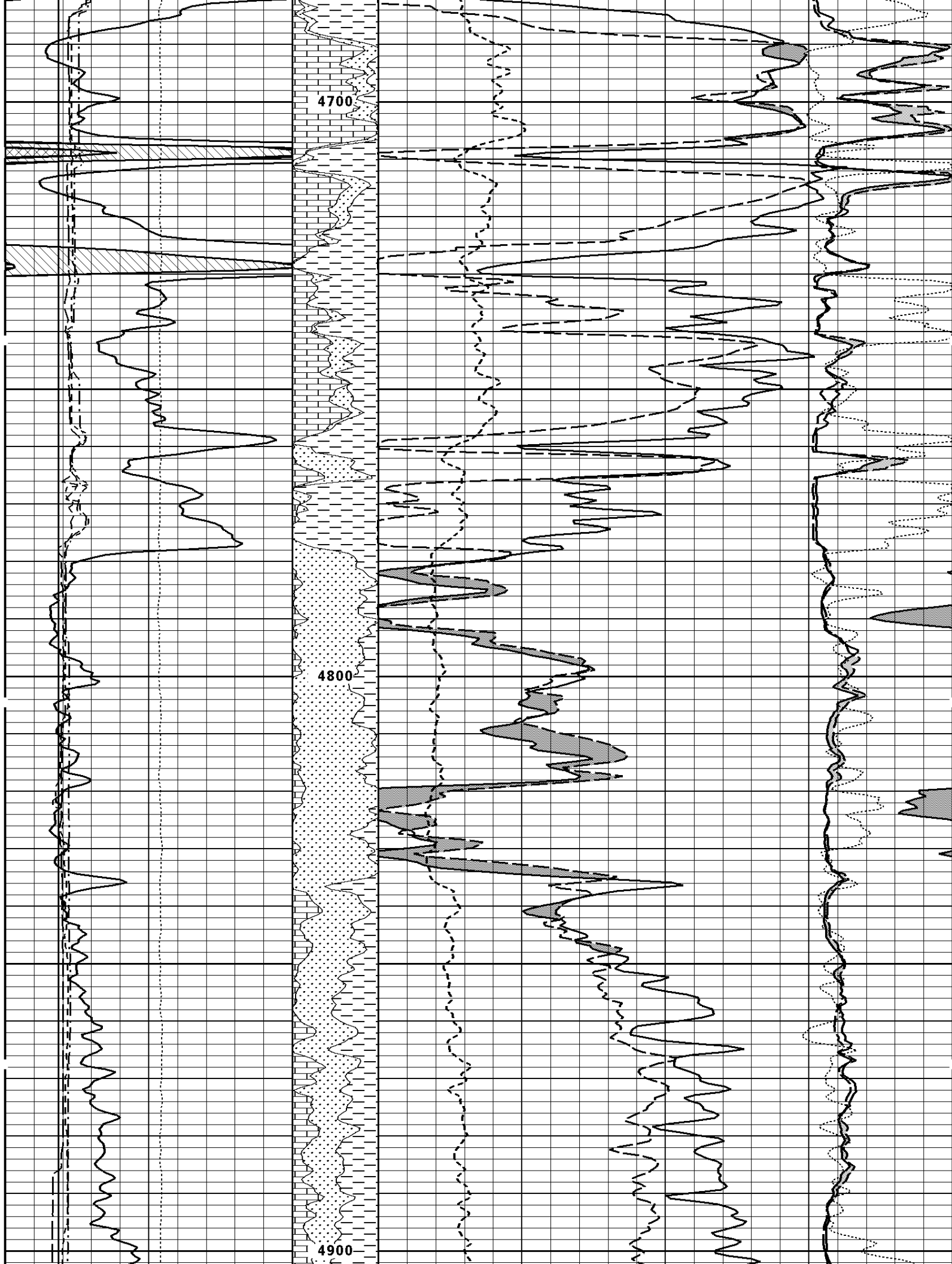








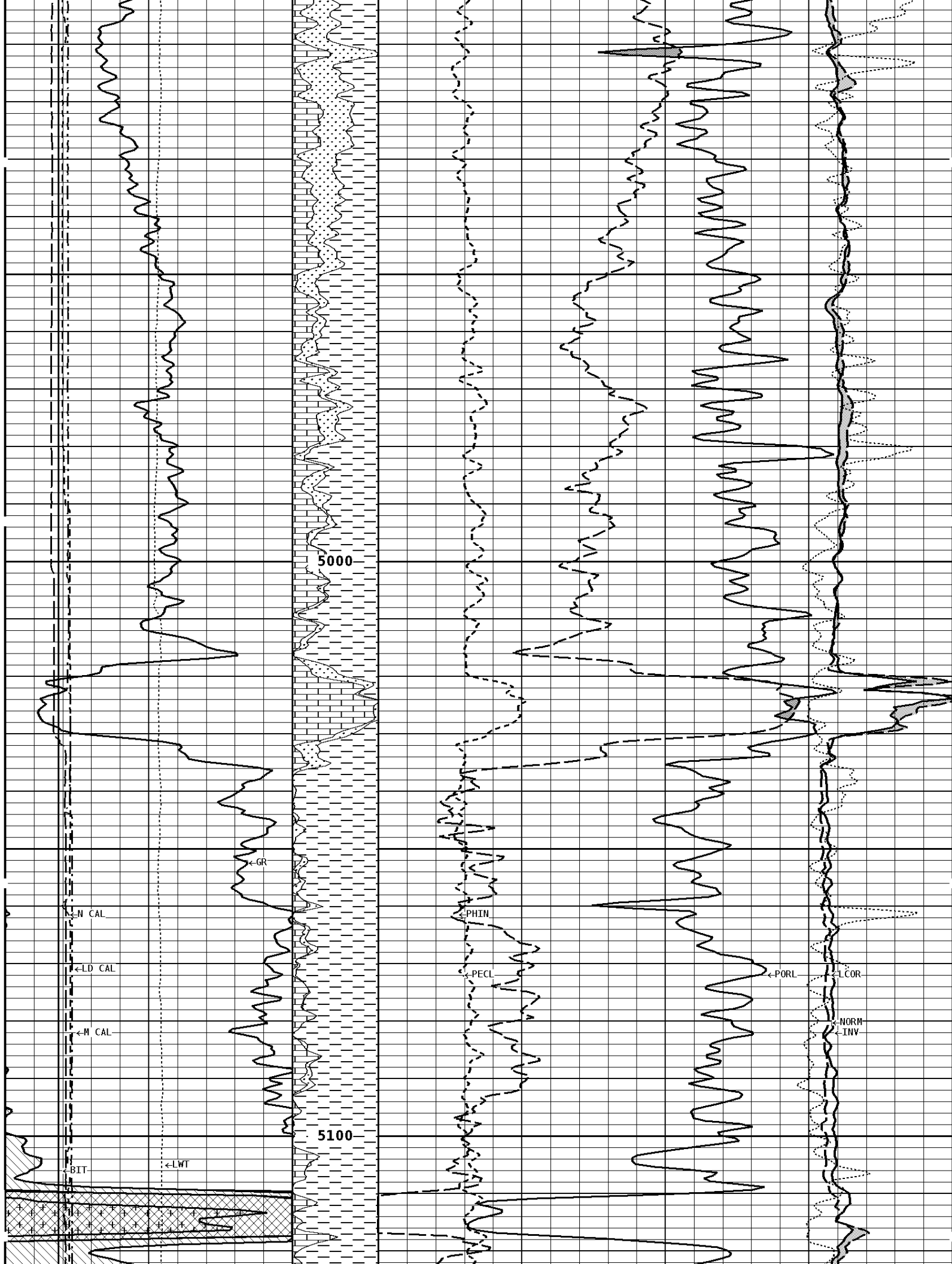


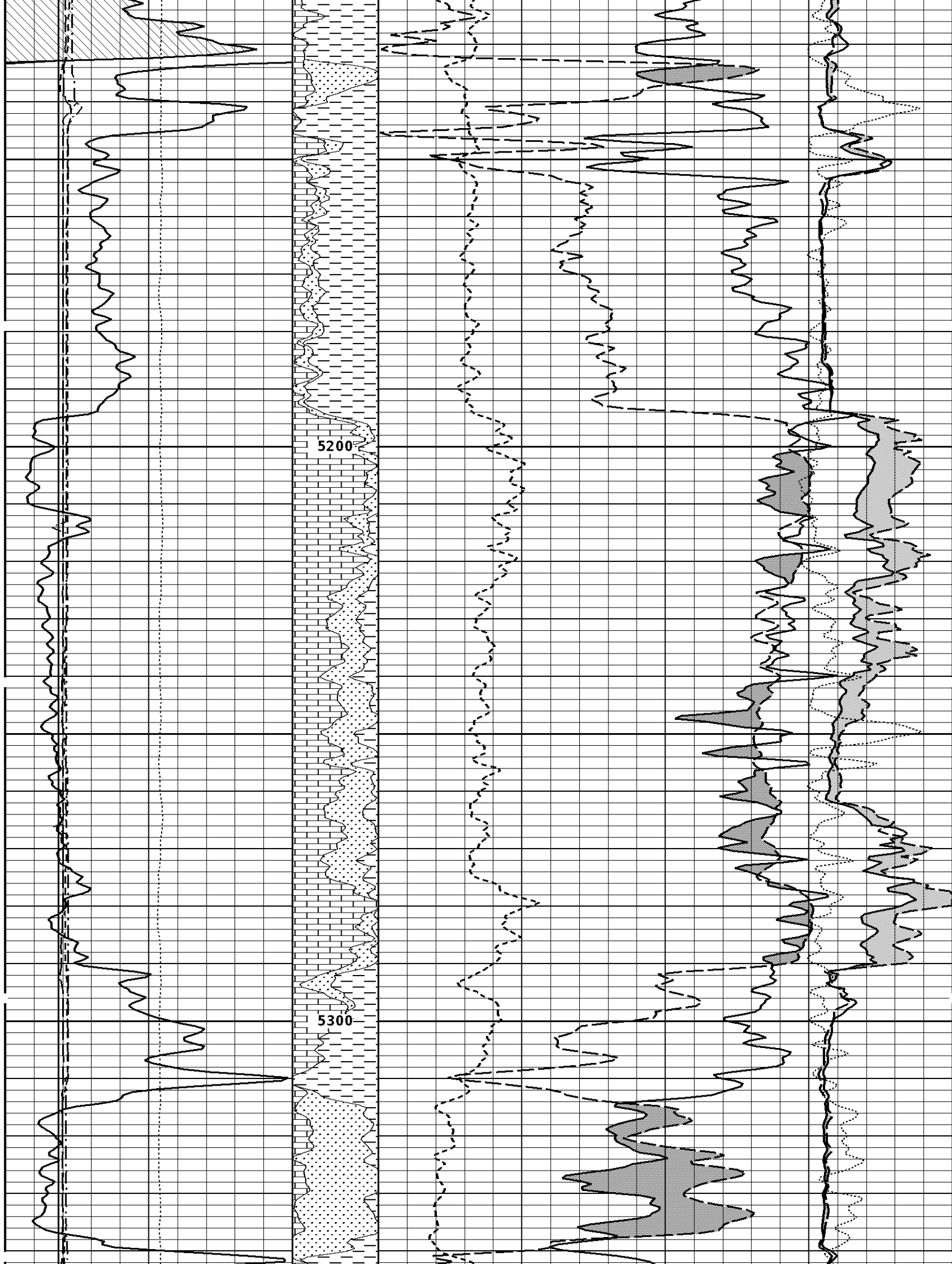


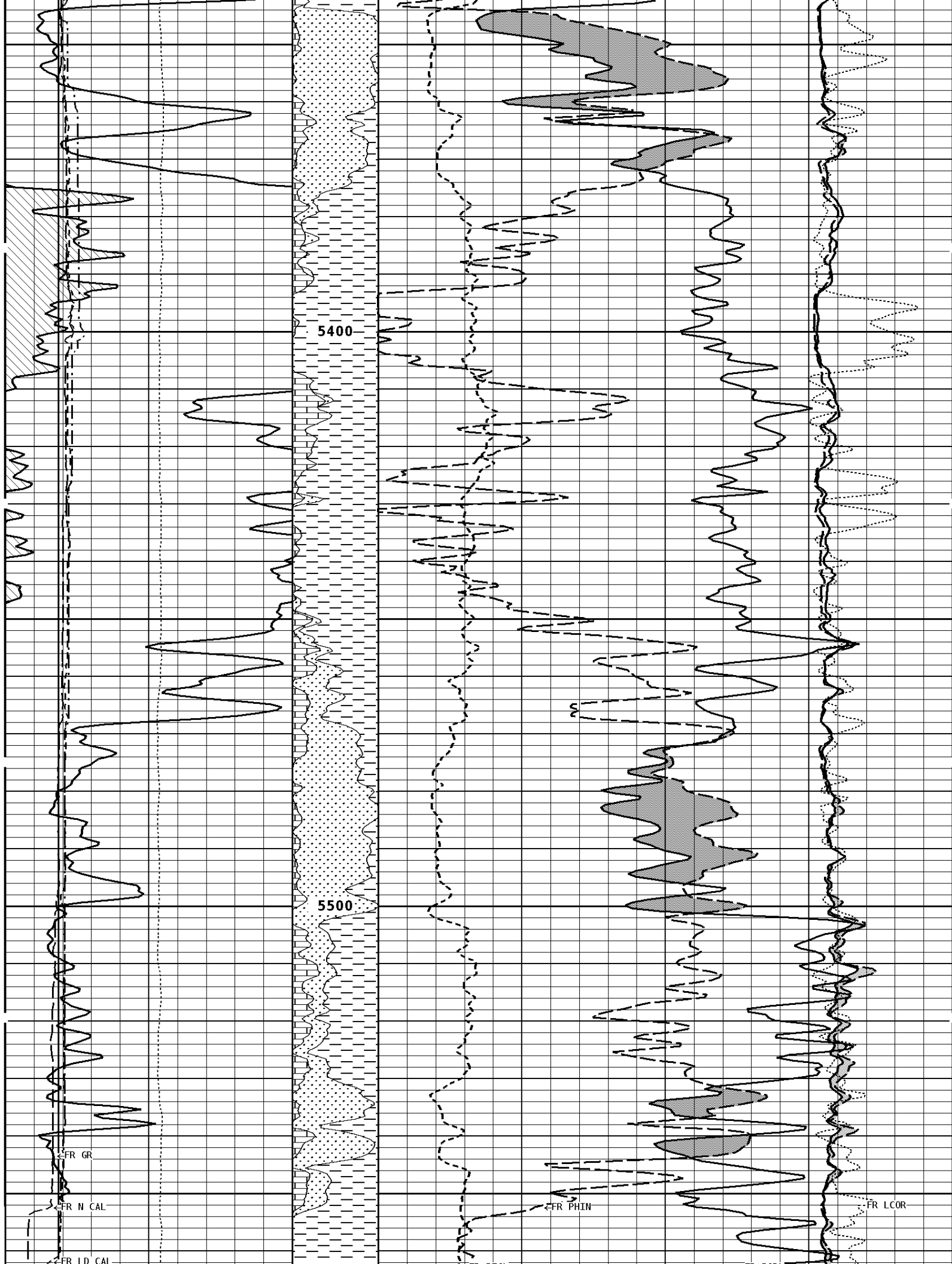
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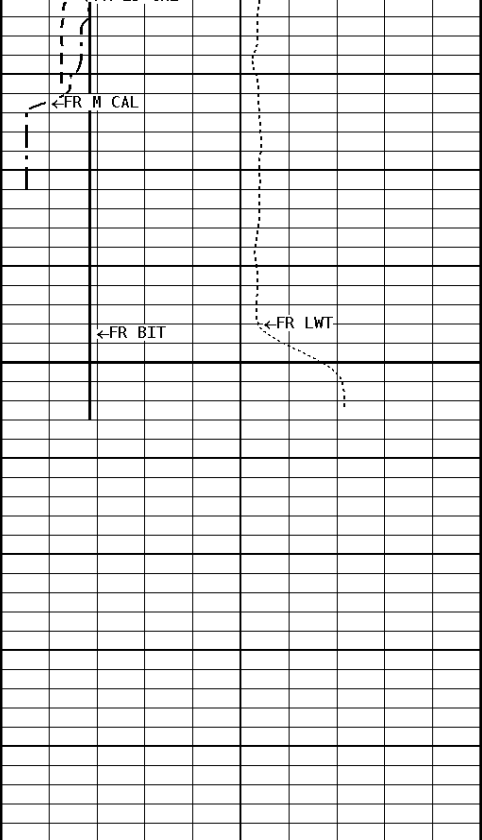
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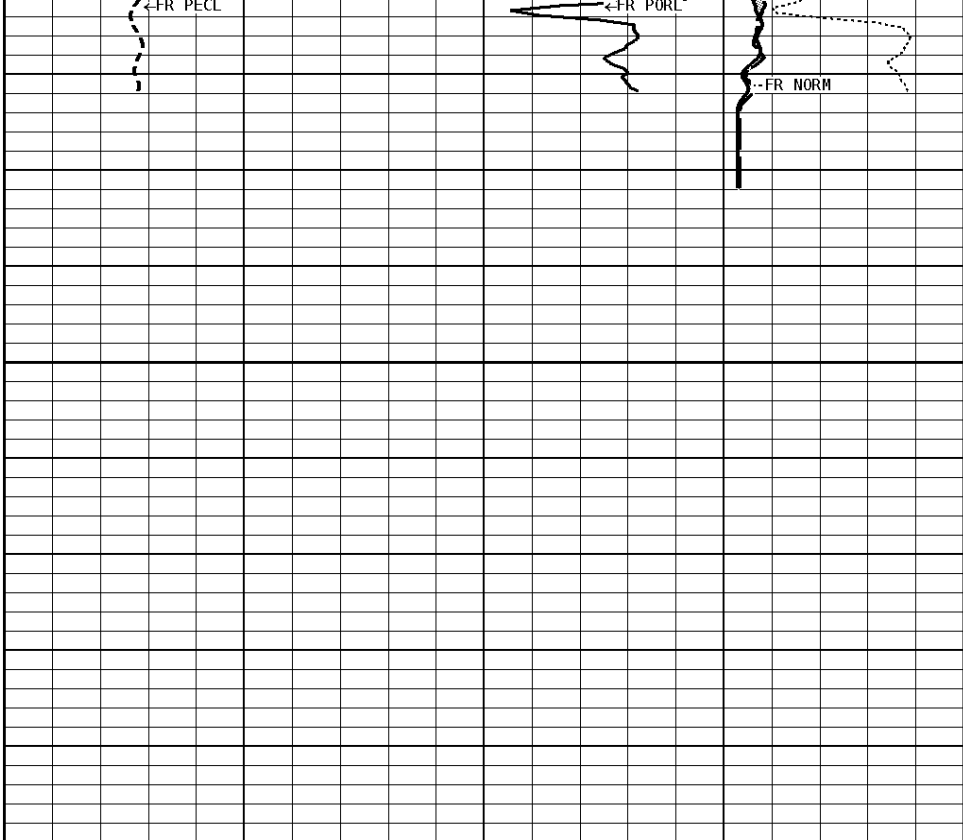






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File #1.2.3



**1:240 MAIN SECTION**

<b>GAMMA RAY API UNITS</b> 150 0  300 0 150		Volume Dolo/Shale 	<b>NEUTRON POROSITY (LIMESTONE) PERCENT</b> 30 ----- -10	
<b>TENSION LBS</b> 10000 ----- 0		Volume Calcite 	<b>DENSITY POROSITY (2.71g/cc) PERCENT</b> 70 30 ----- -10 -50	
<b>DENSITY (X) CALIPER INCHES (IN)</b> 16 6 ----- 26 16		Volume Quartz 	<b>PE CROSS-SECTION BARN/ELECTRON</b> 0 ----- 10	<b>DENSITY CORRECTION G/CC</b> -0.25 ----- 0.25
<b>NEUTRON (Y) CALIPER INCHES (IN)</b> 16 6 ----- 26 16				<b>INVERSE OHMH</b> 0 ----- 40
<b>BIT SIZE INCHES (IN)</b> 6 ----- 16				<b>NORMAL OHMH</b> 0 ----- 40
<b>CALIPER MICRO INCHES (IN)</b> 16 6 ----- 26 16				

**\* Borehole Zone Factors \***

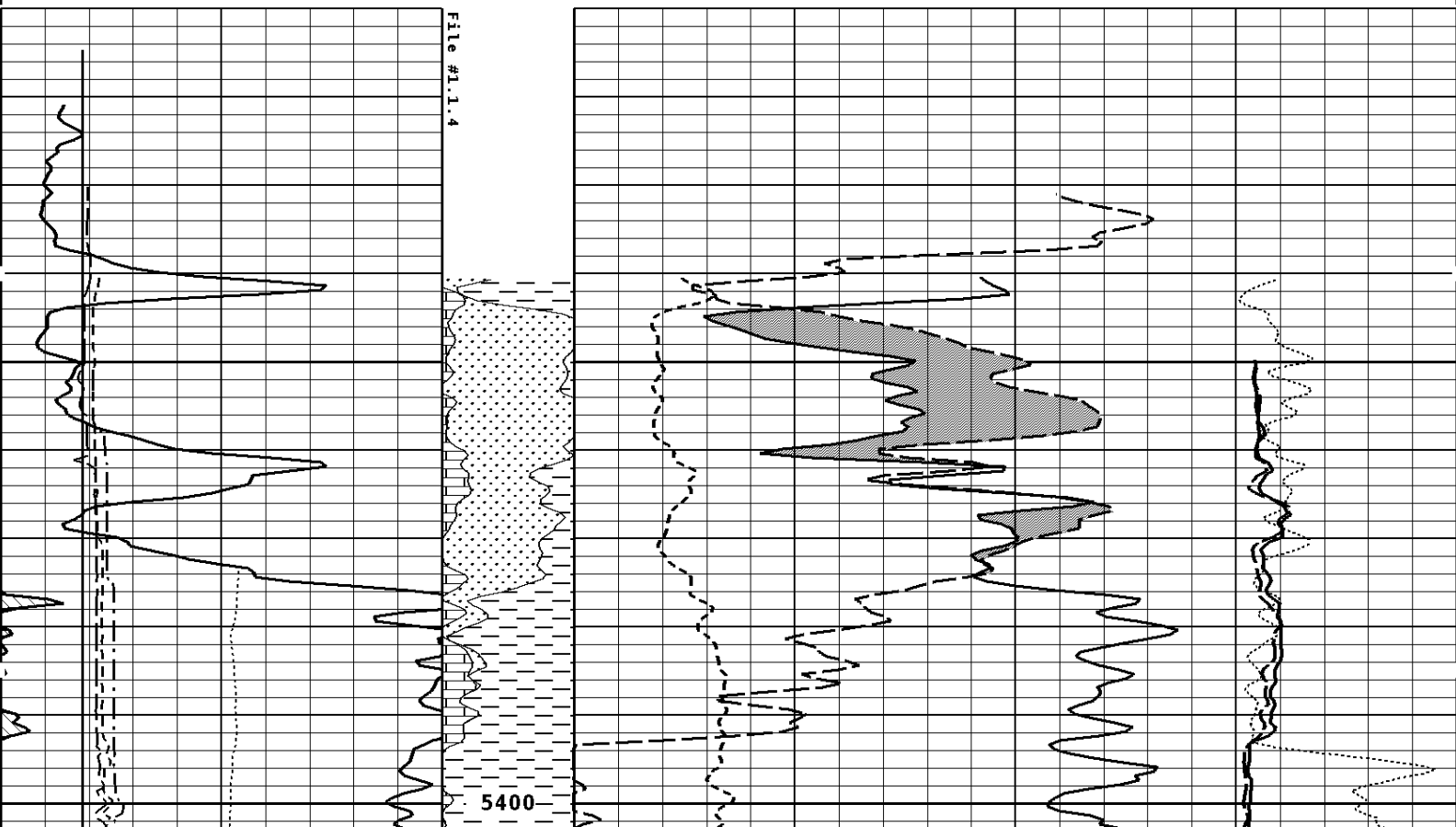
<b>Zone 1 99999.0 to 0.0 Feet</b>		
Matrix Density	_____	2.71 g/cc
Fluid Density	_____	1.00 g/cc
Formation Matrix	_____	Limestone
Drill Bit Size	_____	7.875 in
Casing Diameter	_____	5.500 in

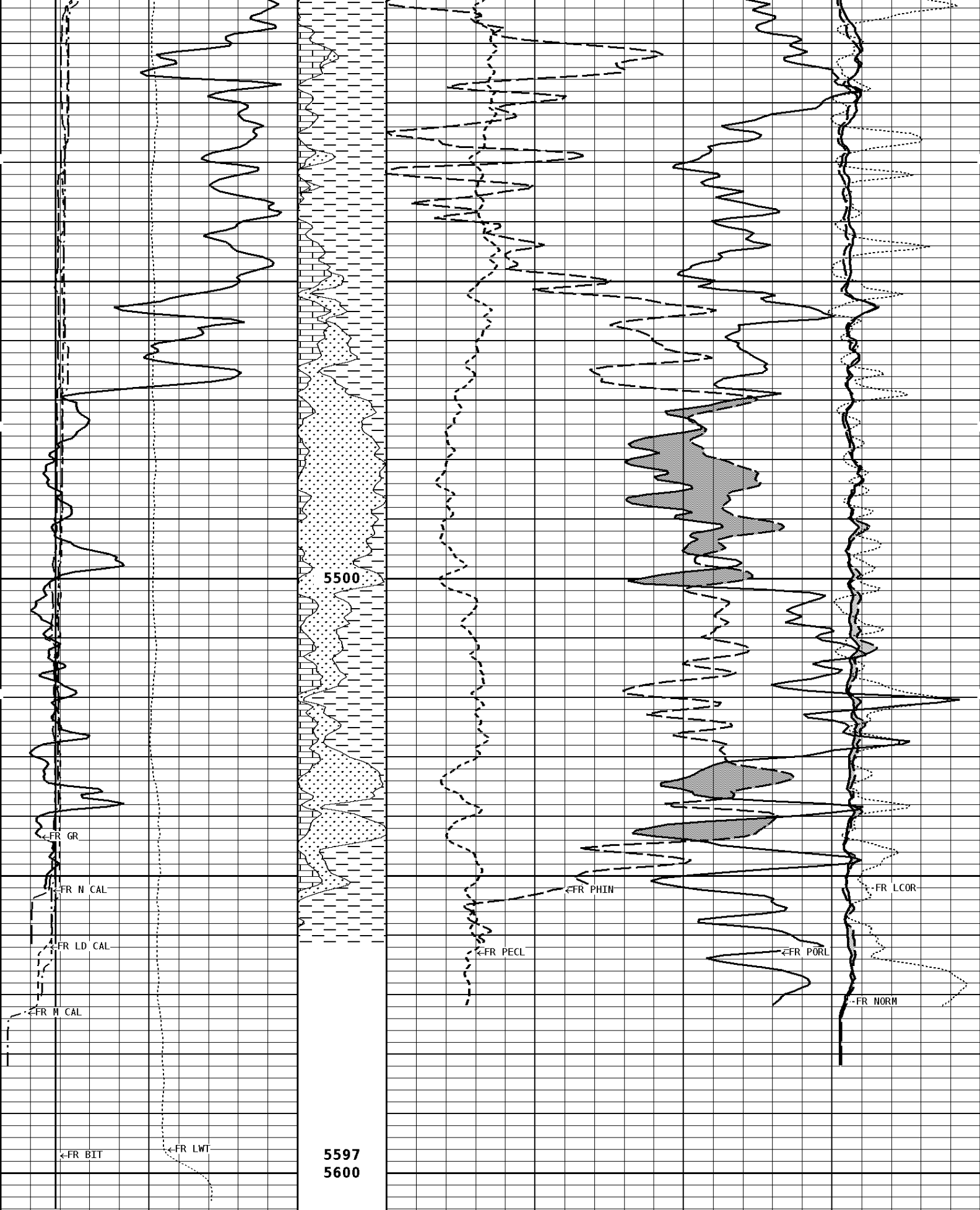
Casing Diameter 5.312 in  
 Casing Thickness 0.250 in  
 Casing Correction (PHI N) \_\_\_\_\_ Disable

Well File: CHIEFTAIN OIL ACHENBACHB 5 JUNE13 MSTK MSTK Scale: 1:240 Format: NLD-240  
 Segment: V1.D1.S4 Reprocess of REPEAT Acquired: 2014-06/13 16:44 3.5.0-12850  
 Reference: 0 Processed: 2014-06/13 18:37 3.5.0-12850

<b>CALIPER MICRO INCHES (IN)</b>		16	26						
6		16							
<b>BIT SIZE INCHES (IN)</b>		6						<b>NORMAL OHH</b>	
								0 40	
<b>NEUTRON (Y) CALIPER INCHES (IN)</b>		16						<b>INVERSE OHH</b>	
6		16						0 40	
<b>DENSITY (X) CALIPER INCHES (IN)</b>		16		Volume Quartz		<b>PE CROSS-SECTION BARNS/ELECTRON</b>		<b>DENSITY CORRECTION G/CC</b>	
6		16		0		10		-0.25 0.25	
<b>TENSION LBS</b>		10000		Volume Calcite		<b>DENSITY POROSITY (2.71g/cc) PERCENT</b>			
0		0		70		30		30	
				30		-10		-10	
				-10				-50	
<b>GAMMA RAY API UNITS</b>		150		Volume Dolo/Shale		<b>NEUTRON POROSITY (LIMESTONE) PERCENT</b>			
0		300		30				-10	

**1:240 REPEAT SECTION**





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←FR GR

←FR N CAL

←FR LD CAL

←FR W CAL

←FR BIT

←FR LWT

←FR PHIN

←FR PECL

←FR PORL

←FR LCOR

←FR NORM

File #1.1.4

## 1:240 REPEAT SECTION

<p style="text-align: center;"><b>GAMMA RAY API UNITS</b></p> <div style="border: 1px solid black; width: 100%; height: 15px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px);"></div> <p style="text-align: center;">150 <span style="float: right;">300</span> 0 <span style="float: right;">150</span></p>	Volume Dolo/Shale	30	<b>NEUTRON POROSITY (LIMESTONE) PERCENT</b>	-10
<p style="text-align: center;"><b>TENSION LBS</b></p> <p style="text-align: center;">10000 <span style="float: right;">0</span></p>	Volume Calcite	70 30 -10	<b>DENSITY POROSITY (2.71g/cc) PERCENT</b>	30 -10 -50
<p style="text-align: center;"><b>DENSITY (X) CALIPER INCHES (IN)</b></p> <p style="text-align: center;">16 <span style="float: right;">26</span> 6 <span style="float: right;">16</span></p>	Volume Quartz	0	<b>PE CROSS-SECTION BARN/ELECTRON</b>	10 -0.25 <span style="float: right;">0.25</span>
<p style="text-align: center;"><b>NEUTRON (Y) CALIPER INCHES (IN)</b></p> <p style="text-align: center;">16 <span style="float: right;">26</span> 6 <span style="float: right;">16</span></p>				<b>INVERSE OHMH</b> 0 <span style="float: right;">40</span>
<p style="text-align: center;"><b>BIT SIZE INCHES (IN)</b></p> <p style="text-align: center;">6 <span style="float: right;">16</span></p>				<b>NORMAL OHMH</b> 0 <span style="float: right;">40</span>
<p style="text-align: center;"><b>CALIPER MICRO INCHES (IN)</b></p> <p style="text-align: center;">16 <span style="float: right;">26</span> 6 <span style="float: right;">16</span></p>				

\* Borehole Zone Factors \*

<b>Zone 1</b>	99999.0	to	0.0	Feet
Matrix Density	_____		2.71	g/cc
Fluid Density	_____		1.00	g/cc
Formation Matrix	_____		Limestone	
Drill Bit Size	_____		7.875	in
Casing Diameter	_____		5.500	in
Casing Thickness	_____		0.250	in
Casing Correction (PHI N)	_____		Disable	

<b>Well File:</b> CHIEFTAIN OIL_ACHENBACHB_5_JUNE13_MSTK_MSTK	<b>Scale:</b> 1:240	<b>Format:</b> LDT-240
<b>Segment:</b> V1.D2.S3 SMAIN	<b>Acquired:</b> Not Available	
<b>Reference:</b> 0	<b>Processed:</b> Not Available	

<b>BIT SIZE INCHES (IN)</b>
6 <span style="float: right;">16</span>
<b>NEUTRON (Y) CALIPER INCHES (IN)</b>
16 <span style="float: right;">26</span> 6 <span style="float: right;">16</span>

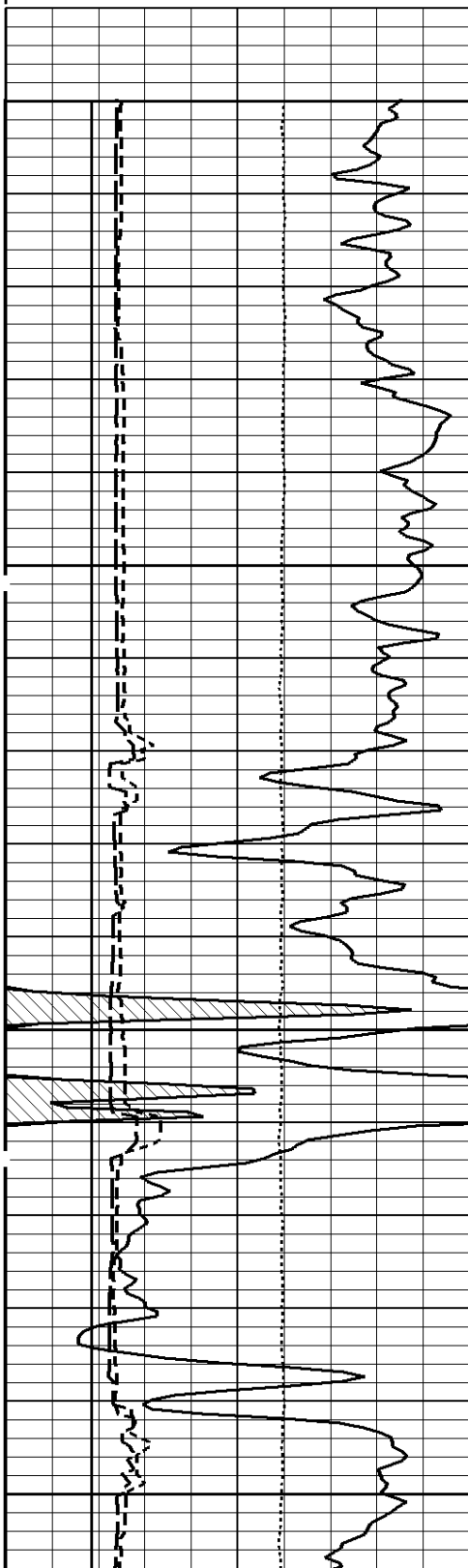
<b>DENSITY (X) CALIPER INCHES (IN)</b>
16 <span style="float: right;">26</span> 6 <span style="float: right;">16</span>

<b>PE CROSS-SECTION BARN/ELECTRON</b>	10 -0.25 <span style="float: right;">0.25</span>
<b>DENSITY CORRECTION G/CC</b>	

TENSION LBS	
10000	0
GAMMA RAY API UNITS	
150	300
0	150

COMPENSATED BULK DENSITY G/CC	
3.0	4.0
2.0	3.0
1.0	2.0
DENSITY POROSITY (2.71g/cc) PERCENT	
70	30
30	-10
-10	-50

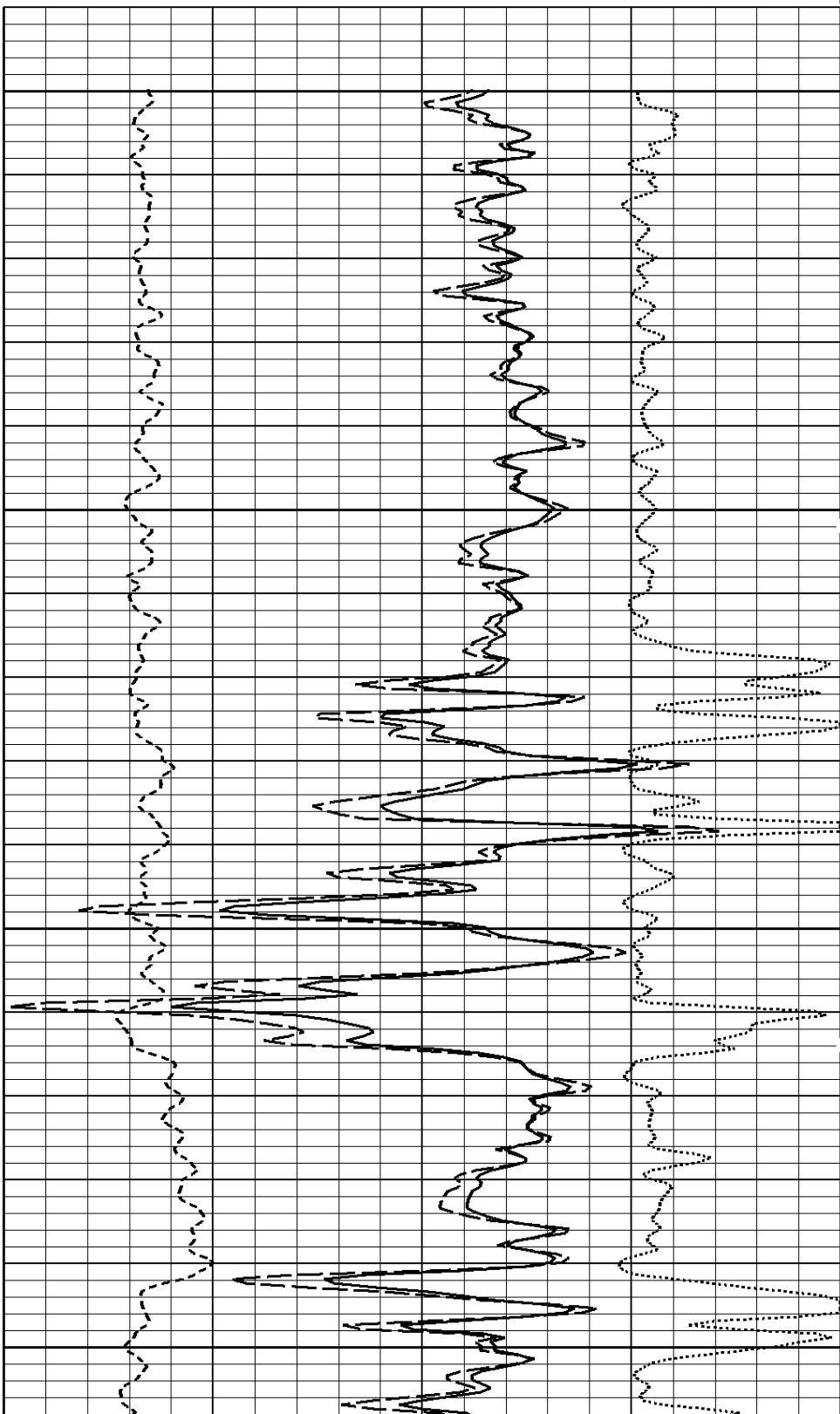
**1:240 MAIN SECTION**  
BULK DENSITY



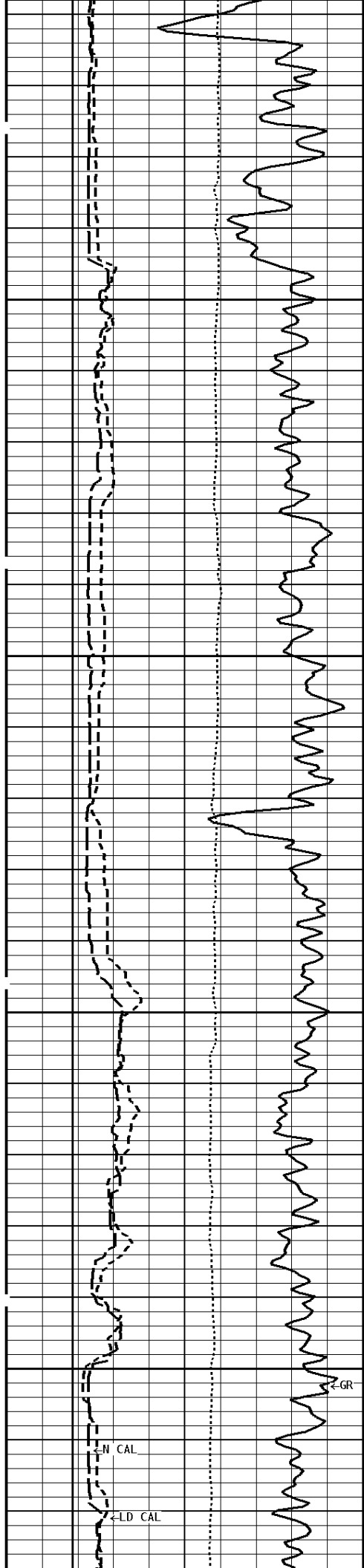
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3700

3800

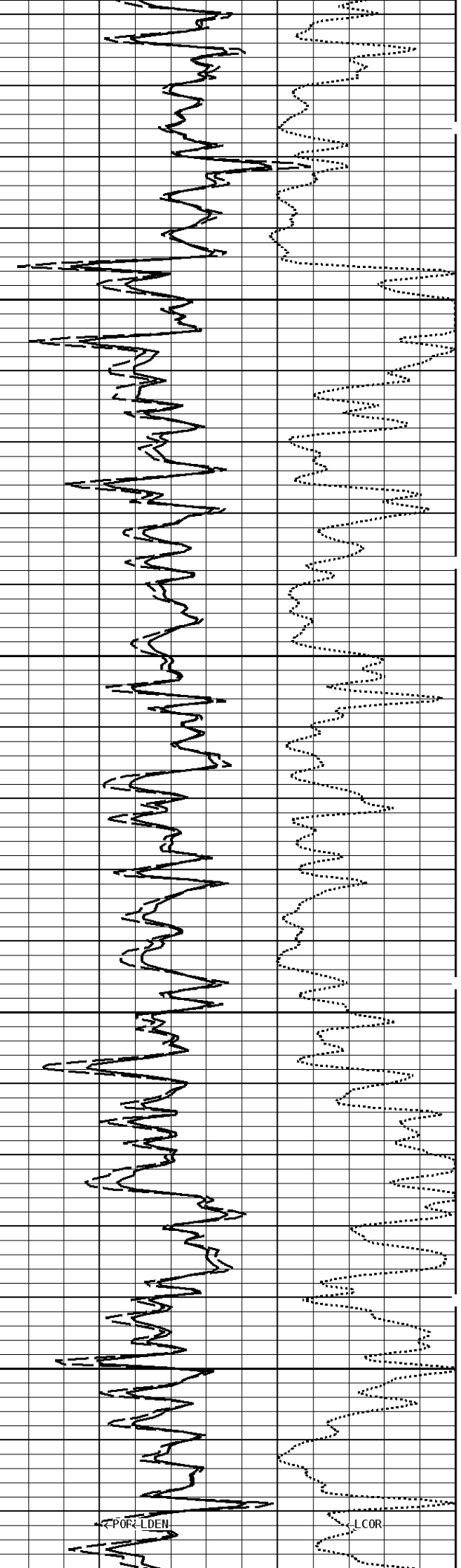
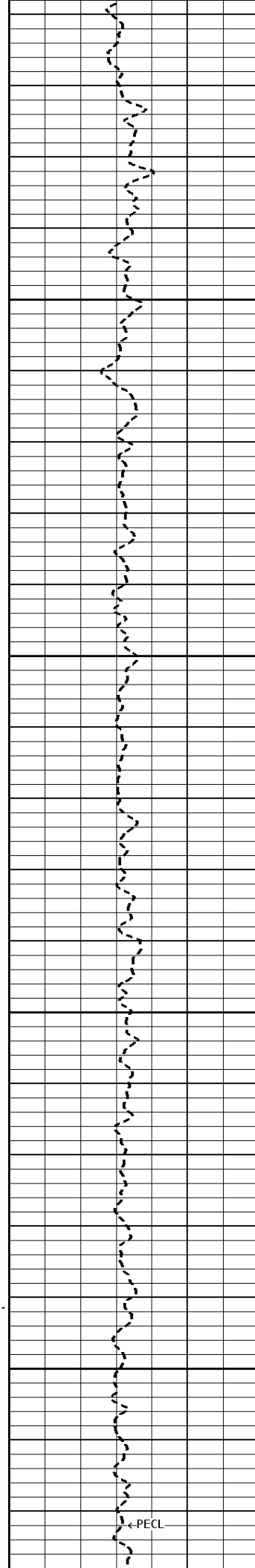


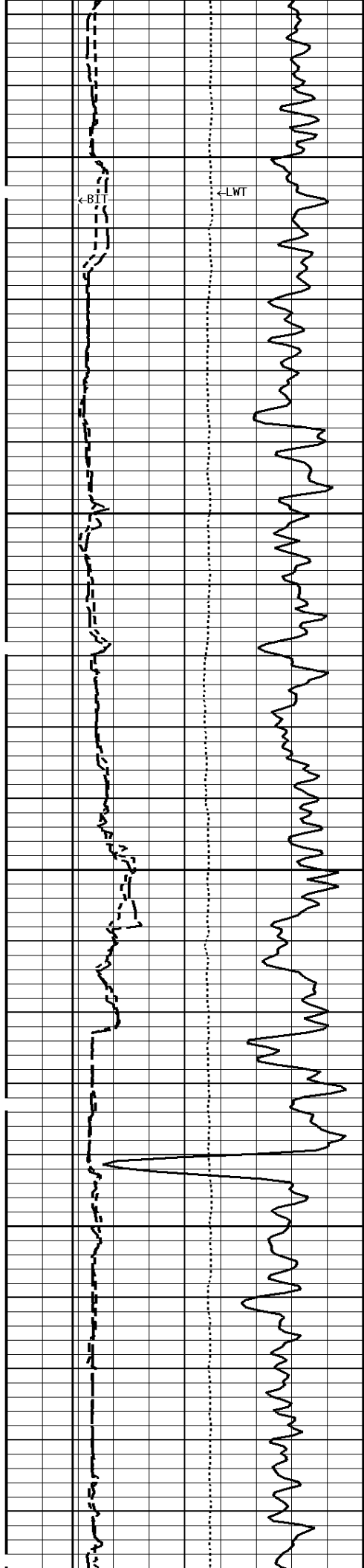
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3900

4000



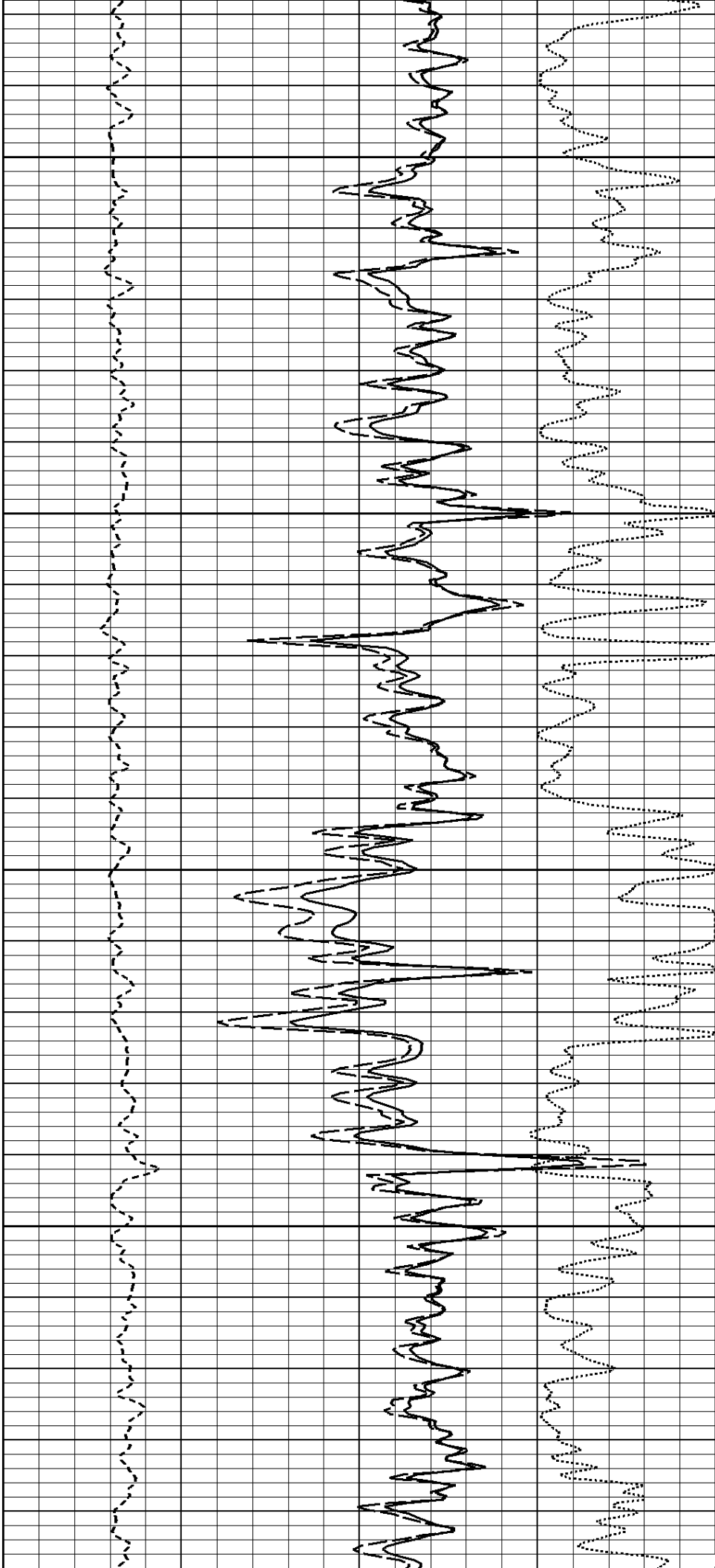


300Cu.Ft.

4100

500Cu.Ft

4200

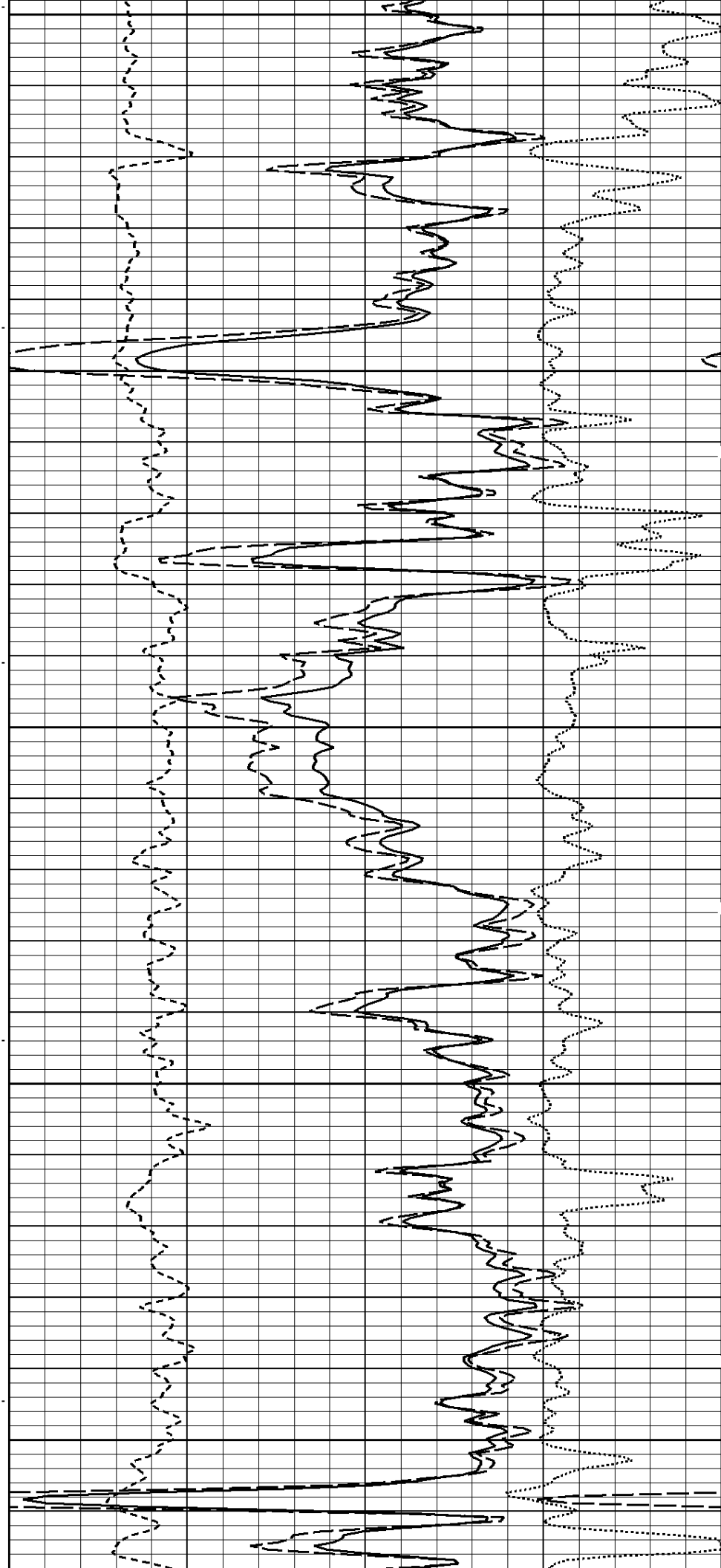
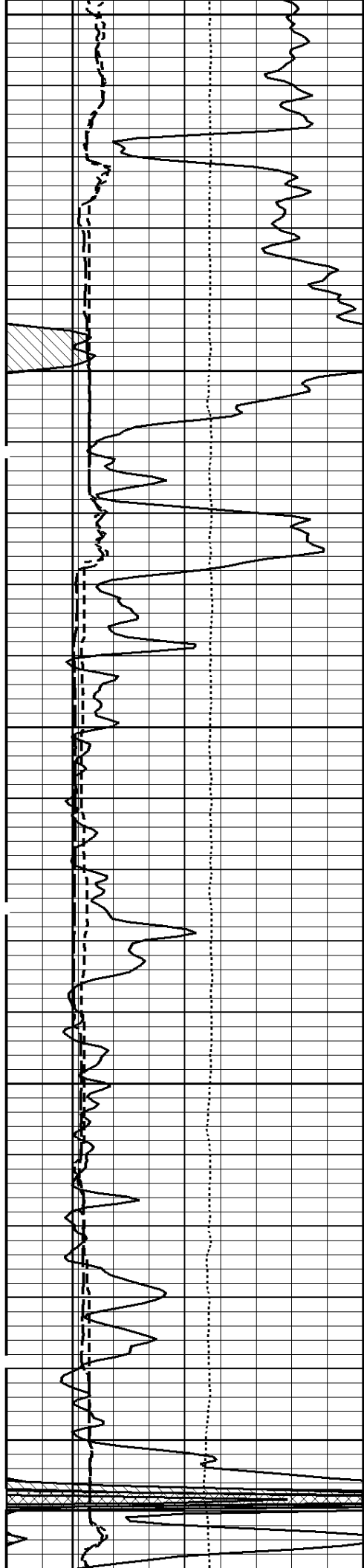


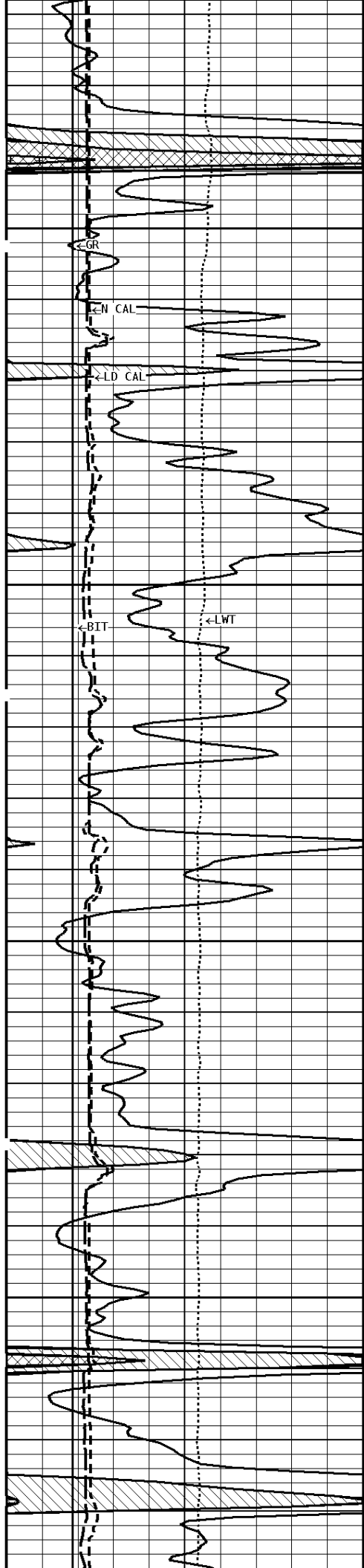
4300

4400

-400Cu.Ft

4500



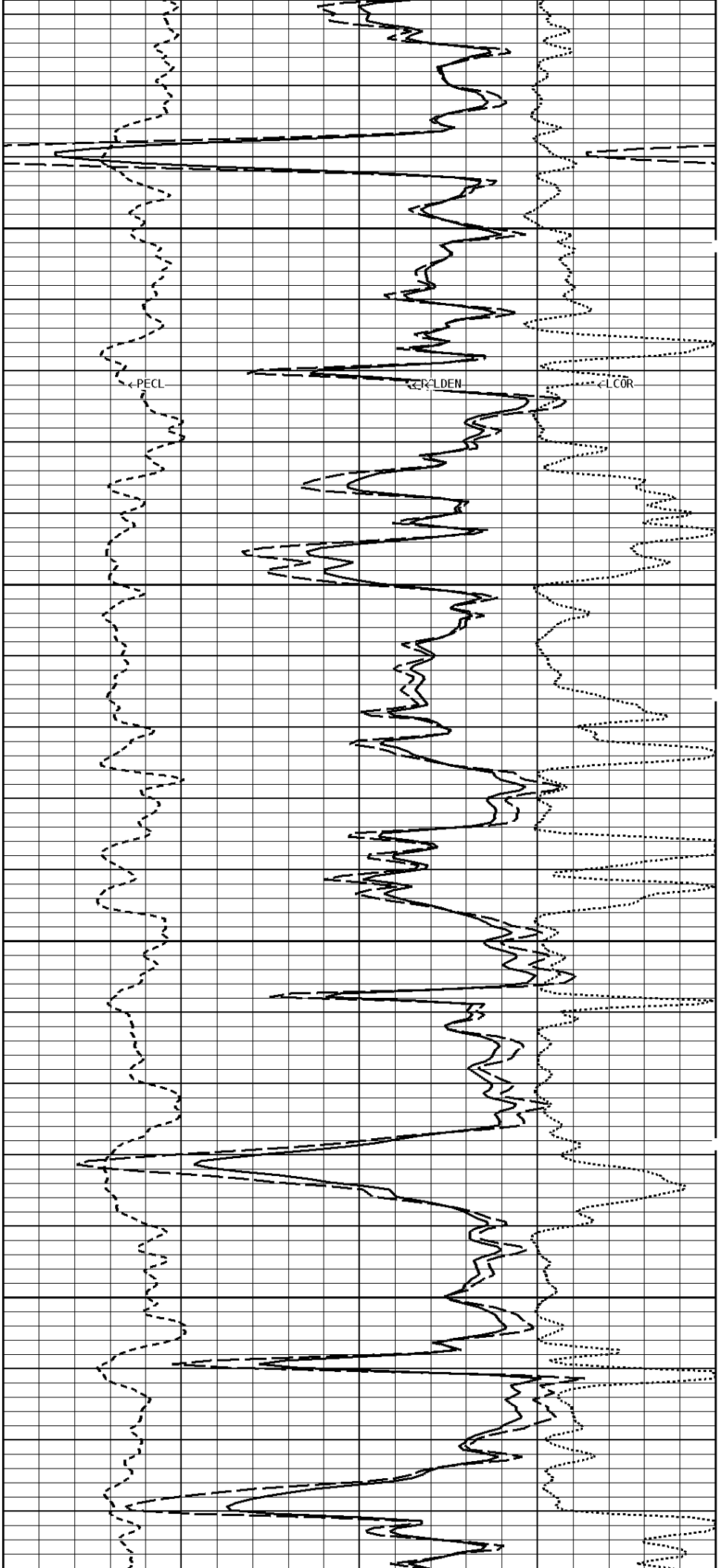


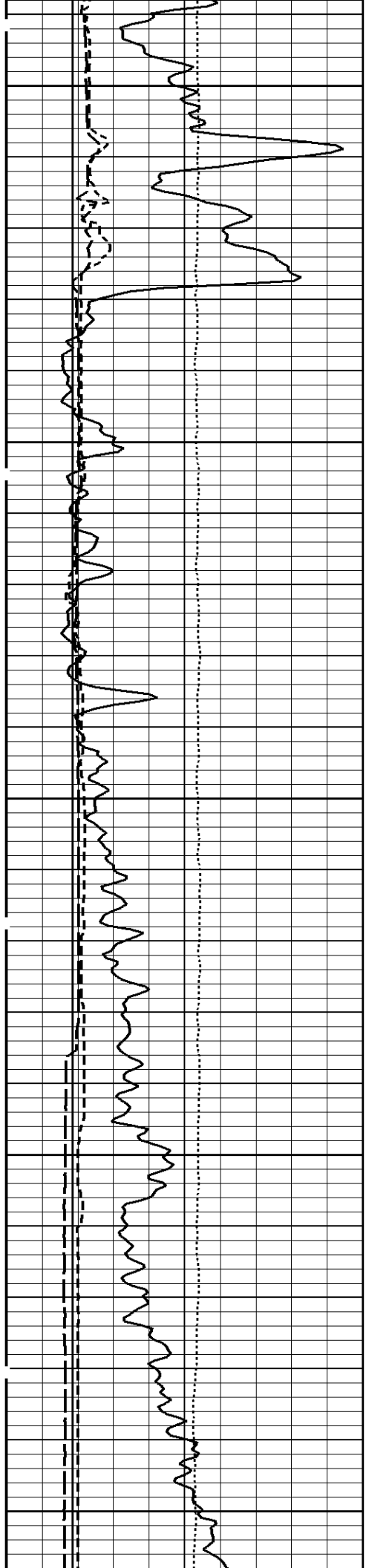
200Cu.Ft

4600

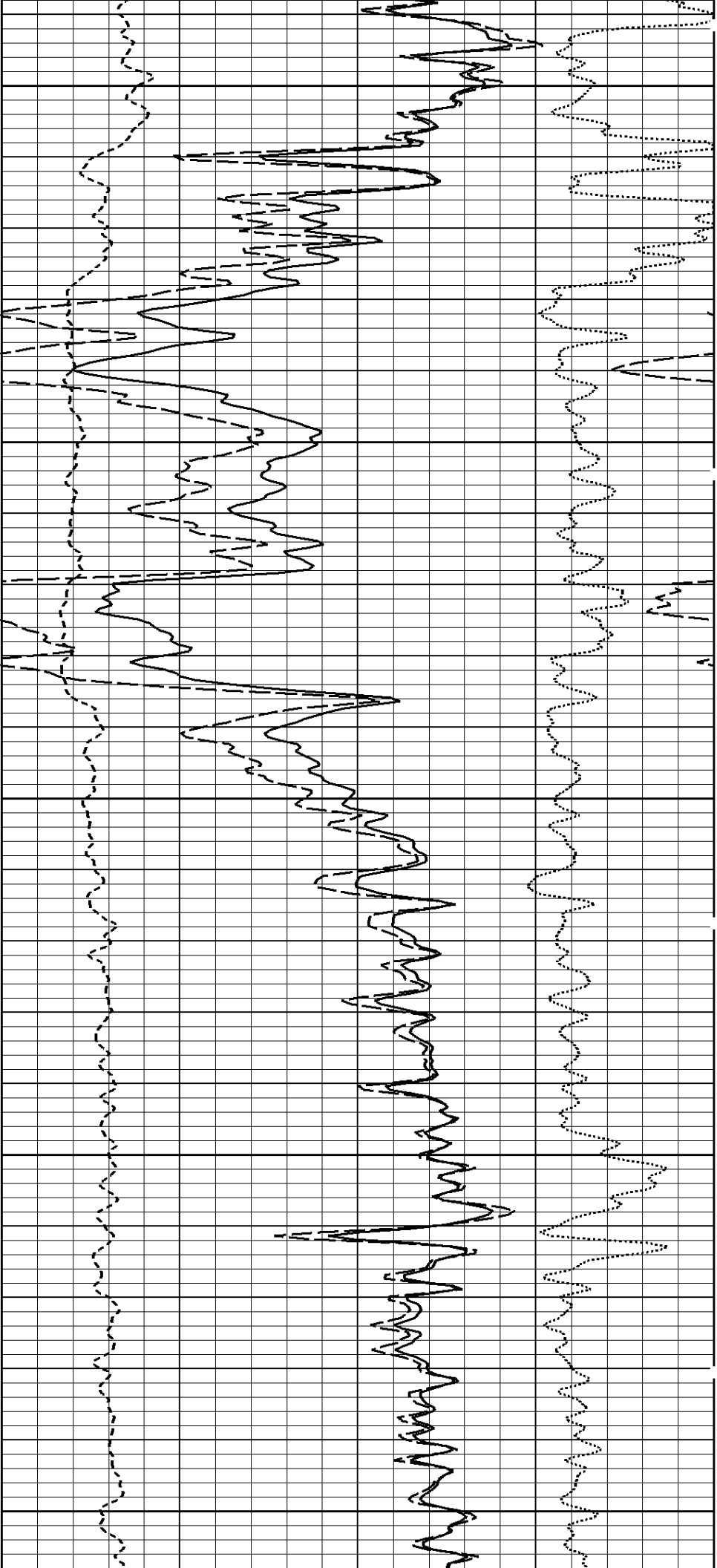
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300Cu.Ft

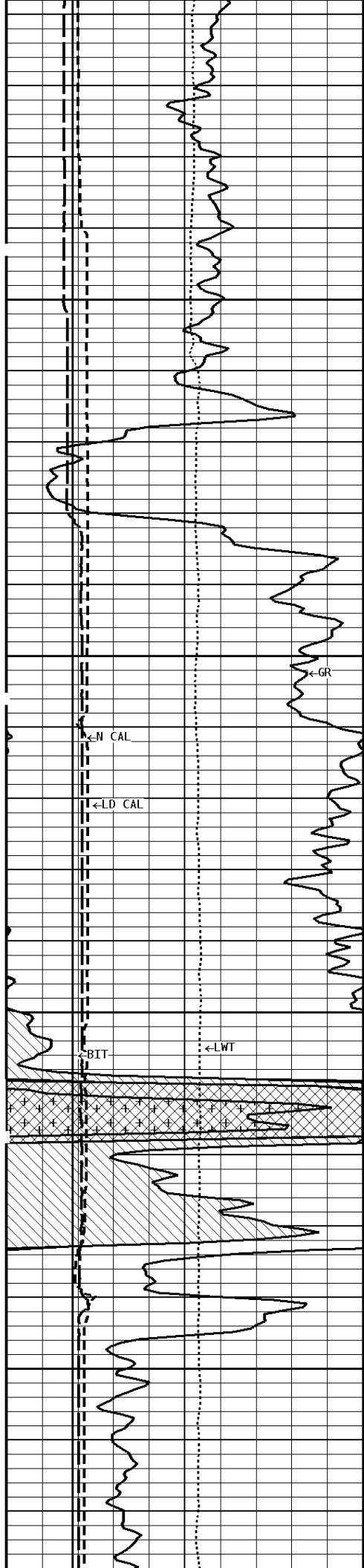




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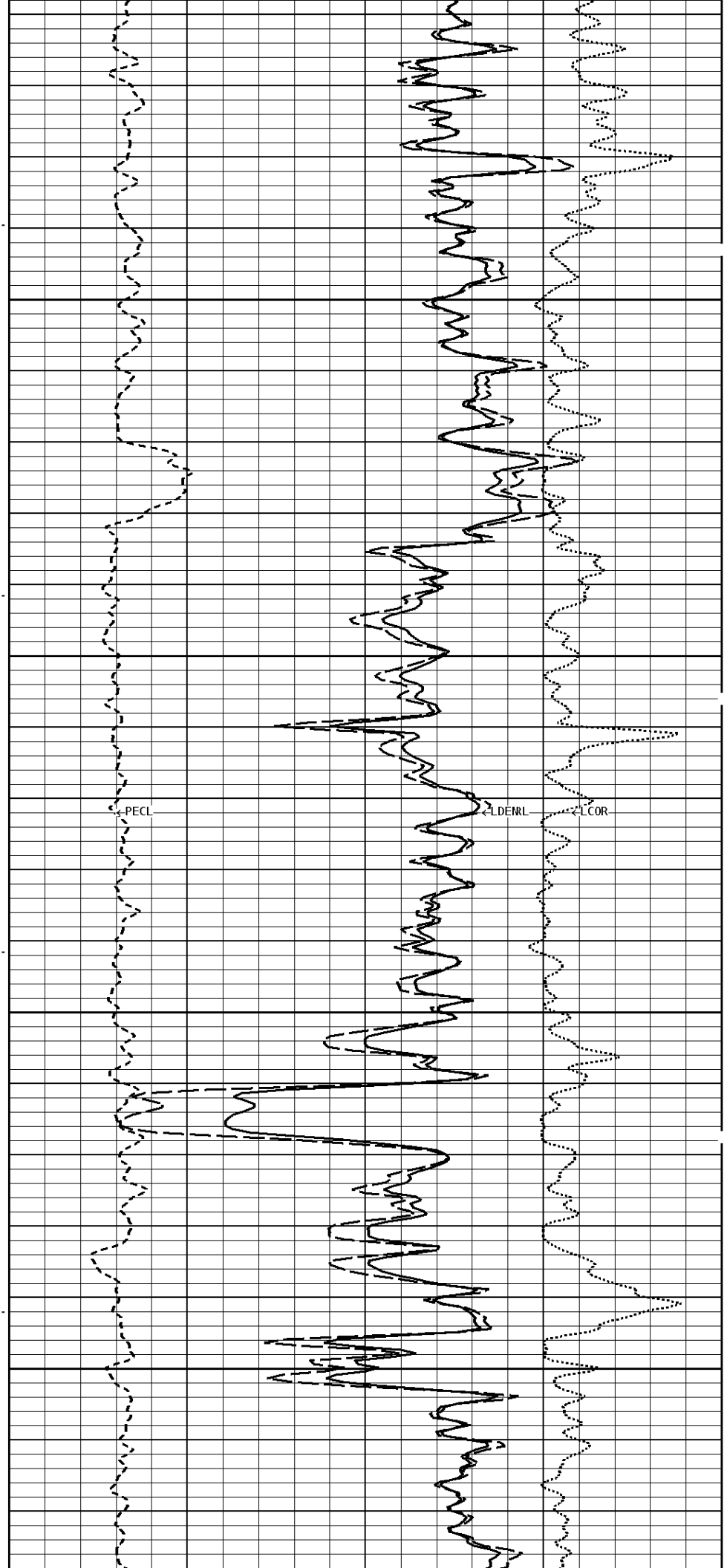
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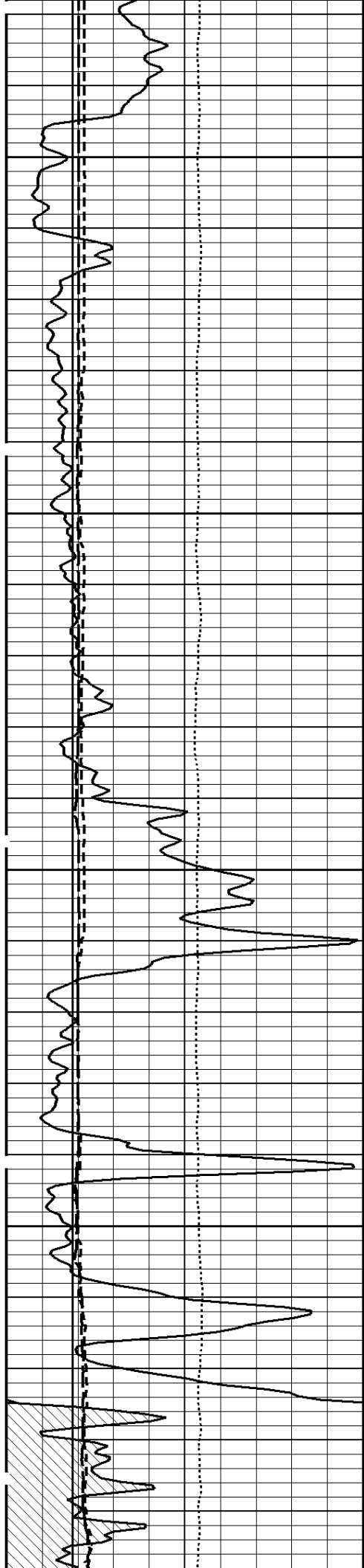


5000  
--200Cu.Ft--

100Cu.Ft--

5100

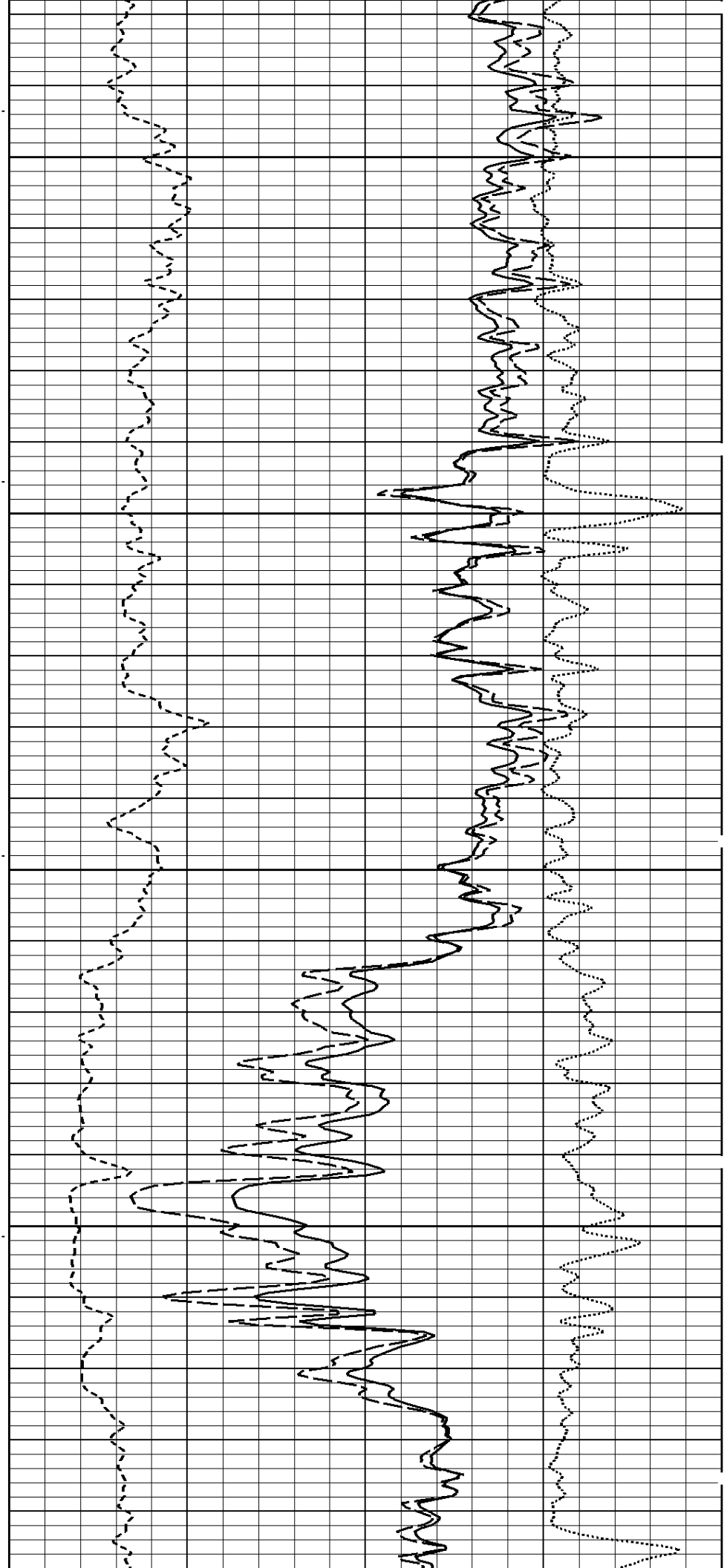




5200

--100Cu.Ft

5300

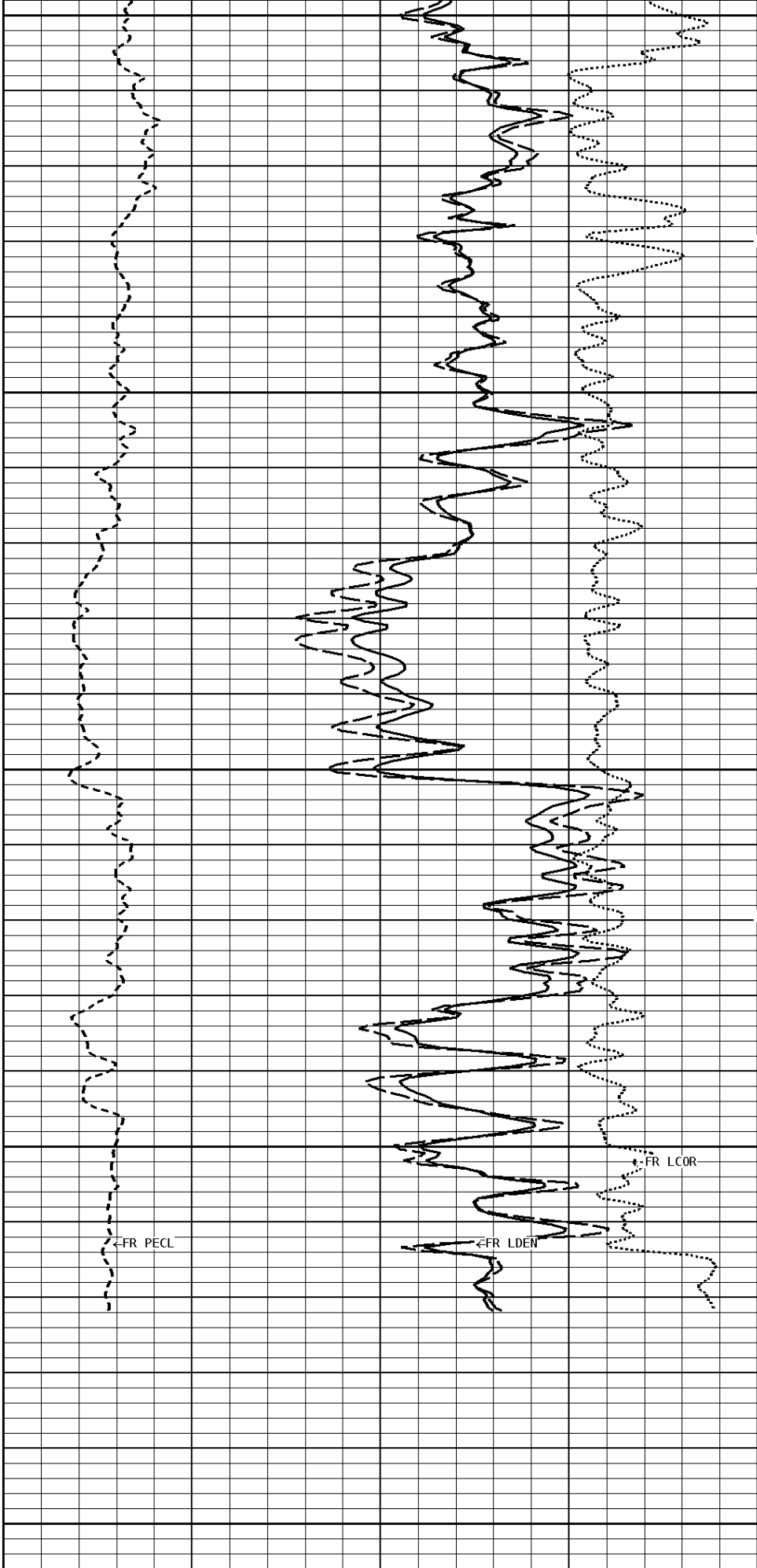
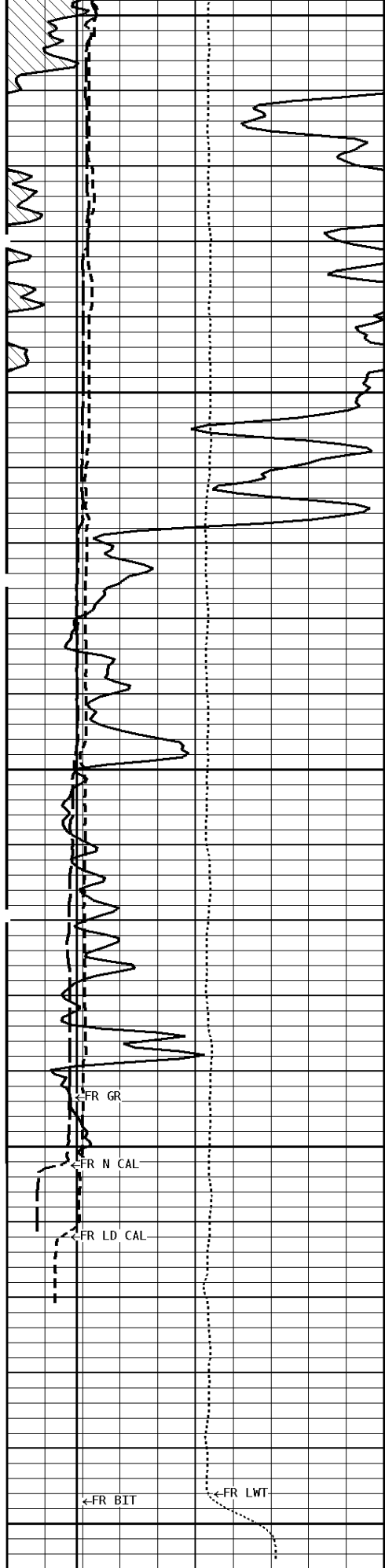


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<FR GR

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File #1.2.3

## 1:240 MAIN SECTION BULK DENSITY

<b>GAMMA RAY API UNITS</b>	- BHV AHV - CU. FT
150  300 0 <span style="float: right;">150</span>	
<b>TENSION LBS</b>	
10000 <span style="float: right;">0</span>	
<b>DENSITY (X) CALIPER INCHES (IN)</b>	
16 <span style="float: right;">26</span> 6 <span style="float: right;">16</span>	
<b>NEUTRON (Y) CALIPER INCHES (IN)</b>	
16 <span style="float: right;">26</span> 6 <span style="float: right;">16</span>	
<b>BIT SIZE INCHES (IN)</b>	
6 <span style="float: right;">16</span>	

<b>DENSITY POROSITY (2.71g/cc) PERCENT</b>	
70 <span style="float: right;">30</span> 30 <span style="float: right;">-10</span> -10 <span style="float: right;">-50</span>	
<b>COMPENSATED BULK DENSITY G/CC</b>	
3.0 <span style="float: right;">4.0</span> 2.0 <span style="float: right;">3.0</span> 1.0 <span style="float: right;">2.0</span>	
<b>PE CROSS-SECTION BARNS/ELECTRON</b>	<b>DENSITY CORRECTION G/CC</b>
0 <span style="float: right;">10</span>	-0.25 <span style="float: right;">0.25</span>

\* Borehole Zone Factors \*

<b>Zone 1 99999.0 to 0.0 Feet</b>
Matrix Density _____ 2.71 g/cc
Fluid Density _____ 1.00 g/cc
Formation Matrix _____ Limestone
Drill Bit Size _____ 7.875 in
Casing Diameter _____ 5.500 in
Casing Correction (PHI N) _____ Disable

\* Calibration Summary \*

<b>Shop Calibration CNT-AA</b>				
Performed : 28-MAY-2014		Time : 10:00		
Sensor Suite : CALI-BCN		ID : NDT-AC-027		
	Jig - Measured	Jig - Calibrated	Units	
	Ring#1 Ring#2	Ring#1 Ring#2		
CL # 1	8.0 14.6	6.0 12.0	IN.	
<b>Shop Calibration LDT-AA</b>				
Performed : 28-May-2014		Time : 11:43		
Sensor Suite : BHC NEUT		ID : CNP-AE-42		
Source ID : N-1044				
	Tank	Verification	Units	
	Measured Calibrated	Jig		
N/F	3.6559 3.6893	3.7007		
Porosity	20.0 20.5	20.7	%	

**Shop Calibration  
LDT-DA**

Performed : 28-May-2014 Time : 11:43

Sensor Suite : CALI-LTH ID : NDT-CA-137

CL #	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
1	7.9	11.3	6.0	12.0	IN.

Performed : 28-May-2014 Time : 11:37  
 Sensor Suite : BHCPELNG ID : LDP-DA-02  
 Source ID : CSV-587

Short Space					
	BKGD	Al	Mg	Al+Fe	Units
LSW1	64	431	708	293	CPS
LSW2	65	520	849	376	CPS
LSW3	262	1290	2059	1122	CPS
LSW4	335	1250	1752	1123	CPS
LSW5	31	42	42	40	CPS
LSW6	85	88	88	88	CPS
LSW7	57	56	55	57	CPS
LSW8	2	2	3	2	CPS
QS	0.191	0.217	0.226	0.215	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space					
	BKGD	Al	Mg	Al+Fe	Units
LLW1	99	575	2378	365	CPS
LLW2	110	994	4156	724	CPS
LLW3	417	1918	7161	1683	CPS
LLW4	546	1120	2919	1044	CPS
LLW5	60	64	80	63	CPS
LLW6	177	173	170	174	CPS
LLW7	109	110	104	110	CPS
LLW8	3	5	9	4	CPS
QL	0.237	0.222	0.240	0.225	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC

**Shop Calibration**  
MST-DA

Performed : 28-MAY-2014 Time : 11:44  
 Sensor Suite : CALI-MSN ID : MST-DA-25

CL #	Jig - Measured		Jig - Calibrated		Units
	Ring#1	Ring#2	Ring#1	Ring#2	
1	6.7	12.4	6.0	12.0	IN.

Performed : 28-MAY-2014 Time : 11:44  
 Sensor Suite : MSTDA-NI ID : MST-DA-25

Internal						
	Zero	Measured Reference	Units	Zero	Calibrated Reference	Units
INV-V	0.0	30010.6		0.00	1546.00	MV
NOR-V	0.1	30159.6		0.00	1546.00	MV
IN-C	0.0	57334.5		0.00	15.46	UA
INV-R					32.34	OHMM
NOR-R					55.11	OHMM

Performed : 28-MAY-2014 Time : 11:45  
 Sensor Suite : MSTDAMSF ID : MST-DA-25

Internal						
	Zero	Measured Reference	Units	Zero	Calibrated Reference	Units
MSFC	6.9	42184.2		0.00	1522.00	UA
MSFB	32757.2	32562.9		0.00	1522.00	MA
MOM1	0.0	43971.1		0.00	1522.00	MV
MSFRA					43.30	OHMM



Company: CHIEFTAIN OIL CO., INC.  
 Well: ACHENBACH B #5  
 Location: 2970' FSL & 2310' FWL  
 Logged: 06-13-2014  
 K.B. Elev: 1413.0 Ft

